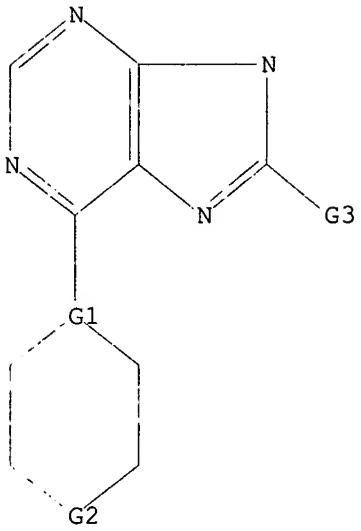

G1 C,N

G2 O,S,N

G3 C,O,S,N

Structure attributes must be viewed using STN Express query preparation.

=> s l1 full
FULL SEARCH INITIATED 13:46:06 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 2276 TO ITERATE

100.0% PROCESSED 2276 ITERATIONS 165 ANSWERS
SEARCH TIME: 00.00.03

L2 165 SEA SSS FUL L1

=> fil caplus
COST IN U.S. DOLLARS

	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	166.94	167.15

FILE 'CAPLUS' ENTERED AT 13:46:21 ON 31 MAY 2006
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FILE COVERS 1907 - 31 May 2006 VOL 144 ISS 23
FILE LAST UPDATED: 30 May 2006 (20060530/ED)

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=> s l2
L3 25 L2

=> d ibib abs hitstr 1-25

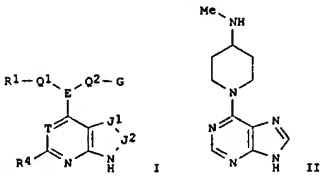
L3 ANSWER 1 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2006:411957 CAPLUS
TITLE: Ortho-condensed pyridine and pyrimidine derivatives (e. g. purines) as protein kinases inhibitors and their preparation, pharmaceutical compositions and use for treatment of protein kinase mediated diseases such as proliferative diseases
INVENTOR(S): Berdini, Valerio; Boyle, Robert George; Saxty, Gordon; Walker, David Winter; Woodhead, Steven John; Wyatt, Paul Graham; Caldwell, John; Collins, Ian; Da Fonseca, Tatiana Faria
PATENT ASSIGNEE(S): Astex Therapeutics Ltd., UK; The Institute of Cancer ResearchRoyal Cancer Hospital; Cancer Research Technology Limited
SOURCE: PCT Int. Appl., 223 pp., which
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006046024	A1	20060504	WO 2005-GB4119	20051025

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.:
GB 2004-23655 A 20041025
US 2004-621821P P 20041025
US 2005-684119P P 20050524

GI



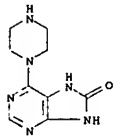
L3 ANSWER 1 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

AB The invention provides a compound for use as a protein kinase B inhibitor, the compound being a compound of the formula I or salts, solvates, tautomers or N-oxides thereof. Compds. of formula I where in T is N or CR5; J1-J2 is N=CR6, R7C=N, R8NCO, (R8)2CO, N=N, or R7C=CR6; E is 5- to 6-membered carbocyclic or heterocyclic group; Q1 is a bond, C1-3 saturated hydrocarbon where one of the carbon atoms may be optionally replaced by O or N, or an adjacent pair of carbons be replaced by CONH and derivs., or NHCO and derivs.; Q2 is a bond, (un)substituted saturated C1-3 hydrocarbon, where one of the carbon atoms my be optionally replaced by N or O; G is H, NH2 and derivs., OH, or SH, with the provision that E is (hetero)aryl and Q2 is a bond, then G is H; R1 is H, or (hetero)aryl;R4, R6, and R8 are independently H, halo, C1-5 saturated hydrocarbyl, CN, CONH2, CONHR9, CF3, NH2, NHCOR9, or NHCONHR9; R5 and R7 are independently H, halo, C1-5 saturated heterocarbyl, CN, or CF3; R9 is (un)substituted Ph, or (un)substituted Bn; or their pharmaceutically acceptable salts, solvates, tautomers, or N-oxides thereof. Example compound II was prepared by amination of 9-(tetrahydropyran-2-yl)-6-chloropurine with 4-(N-Boc)piperidine;the resulting [1-[9-(tetrahydropyran-2-yl)-9H-purin-6-yl]piperidin-4-yl]carbamic acid tert-Bu ester underwent methylation with Me iodide to give methyl-[1-[9-(tetrahydropyran-2-yl)-9H-purin-6-yl]piperidin-4-yl]carbamic acid tert-Bu ester, which underwent hydrolysis to give example compound II. All the invention compds. were tested for their protein kinase inhibitory activity. From the assay it was determined that compound II and some of the other example compds. exhibited IC50 values of less than 10 μM against both protein kinase A and B. The invention compds. were also evaluated for their antiproliferative activity. Many of the invention compds. were found to have IC50 values of less than 25 μM and the preferred compds. have IC50 values of less than 15 μM.

IT **885499-50-3P 885499-51-4P**

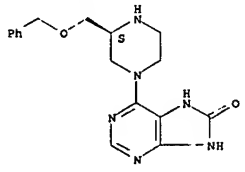
L3 ANSWER 1 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(drug candidate; prepn. of ortho-condensed pyridine and pyrimidine derivs. (e. g. purines) as protein kinases inhibitors useful for treatment of protein kinase mediated diseases such as proliferative diseases)

RN 885499-50-3 CAPLUS
CN 8H-Purin-8-one, 1,7-dihydro-6-(1-piperazinyl)- (9CI) (CA INDEX NAME)



RN 885499-51-4 CAPLUS
CN 8H-Purin-8-one, 1,7-dihydro-6-[(3S)-3-[(phenylmethoxy)methyl]-1-piperazinyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 2 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:1261002 CAPLUS
DOCUMENT NUMBER: 144:27553
TITLE: Preparation of disalt nitrogen heteroaryl inhibitors of IL-12 production
INVENTOR(S): Kostik, Elena; Sun, Lijun
PATENT ASSIGNEE(S): Synta Pharmaceuticals Corp., USA
SOURCE: PCT Int. Appl., 123 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

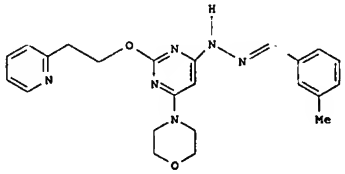
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005112938	A2	20051201	WO 2005-US12578	20050413
WO 2005112938	A3	20060504		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US 2005282802	A1	20051222	US 2005-105818	20050413

PRIORITY APPLN. INFO.:
US 2004-562150P P 20040413

OTHER SOURCE(S): MARPAT 144:27553
GI



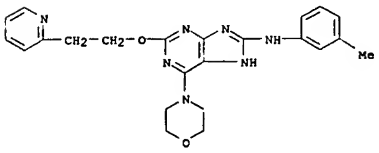
AB This invention relates to disalt nitrogen-heteroaryl inhibitors of IL-12 production, and related methods and pharmaceutical compns. E.g., the dimesylate salt of I was prepared from I and MeSO3H.

IT **870087-35-7P**
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

L3 ANSWER 2 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
(prepn. of disalt nitrogen heteroaryl inhibitors of IL-12 prodn.)
RN 870087-35-7 CAPLUS
CN 1H-Purin-8-amine, N-(3-methylphenyl)-6-(4-morpholinyl)-2-[2-(2-pyridinyl)ethoxy]-, dimethanesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 870087-23-3
CMF C23 H25 N7 O2

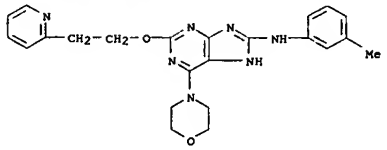


CM 2

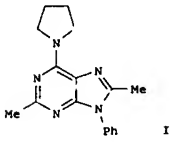
CRN 75-75-2
CMF C H4 O3 S

IT 870087-23-3
RL: RCT (Reactant); THU (Therapeutic use); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)
(preparation of disalt nitrogen heteroaryl inhibitors of IL-12 production)
RN 870087-23-3 CAPLUS
CN 1H-Purin-8-amine, N-(3-methylphenyl)-6-(4-morpholinyl)-2-[2-(2-pyridinyl)ethoxy]- (9CI) (CA INDEX NAME)

L3 ANSWER 2 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



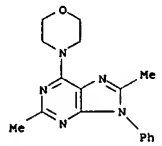
L3 ANSWER 3 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:549856 CAPLUS
DOCUMENT NUMBER: 143:229805
TITLE: Parallel solution-phase synthesis of a 2,6,8,9-tetrasubstituted purine library via a sulfur intermediate
AUTHOR(S): Liu, Jinglin; Dang, Qun; Wei, Zhonglin; Zhang, Hengbin; Bai, Xu
CORPORATE SOURCE: Center for Combinatorial Chemistry and Drug Discovery, Jilin University, Changchun, 130012, Peop. Rep. China
SOURCE: Journal of Combinatorial Chemistry (2005), 7(4), 627-636
CODEN: JCCHFF; ISSN: 1520-4766
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 143:229805
GI



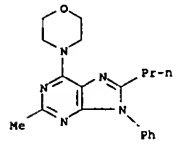
I

AB Purine analogs exhibiting a wide range of pharmacol. activities have been considered a privileged structure in medicinal chemical In addition, the purine core consisting of four points of structural diversity is a well-sought scaffold in combinatorial chemical Although most of the efforts have been focused on 2,6,9-, 6,8,9-, or 2,8,9-trisubstituted purines, syntheses of 2,6,8,9-tetrasubstituted purines are rare. A parallel solution phase approach for the synthesis of fully substituted purines, e.g., I, via a 6-sulfur-substituted pyrimidine as the key intermediate is presented. This strategy combining construction and modification of the purine ring thus increased the structural diversity of the final products. Sequential substitution of chlorines in 4,6-dichloro-2-methyl-5-nitropyrimidine with primary amine and benzylmercaptan afforded the 4-amino-6-benzylthio-5-nitropyrimidine, which was readily converted to its diaminopyrimidine analog by reduction of the nitro group. The diaminopyrimidine intermediate was cyclized to construct the purine ring with a C-8 substituent. Eventual oxidation of sulfur to sulfone and subsequent displacement by a primary or secondary amine provided the desired 2,6,8,9-tetrasubstituted purine analogs. This synthetic methodol. was validated with the synthesis of a 216-member purine library.
IT 862773-61-3P 862773-67-9P 862773-79-3P
862773-97-5P 862774-03-6P 862774-15-0P

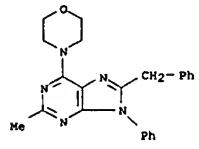
L3 ANSWER 3 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
862774-33-2P 862774-39-8P 862774-51-4P
862774-69-4P 862774-75-2P 862774-87-6P
862775-07-3P 862775-13-1P 862775-25-5P
862775-43-7P 862775-49-3P 862775-62-0P
RL: SPN (Synthetic preparation); PREP (Preparation)
(parallel soln.-phase prepn. of substituted purines via amination of dichloro(methyl)nitropyrimidine with amines followed by sulfanylation with benzylthiol, redn., cyclization with aldehydes, oxidn., and substitution with amines)
RN 862773-61-3 CAPLUS
CN 9H-Purine, 2,8-dimethyl-6-(4-morpholinyl)-9-phenyl- (9CI) (CA INDEX NAME)



RN 862773-67-9 CAPLUS
CN 9H-Purine, 2-methyl-6-(4-morpholinyl)-9-phenyl-8-propyl- (9CI) (CA INDEX NAME)

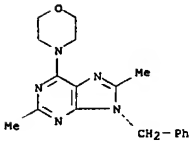


RN 862773-79-3 CAPLUS
CN 9H-Purine, 2-methyl-6-(4-morpholinyl)-9-phenyl-8-(phenylmethyl)- (9CI) (CA INDEX NAME)

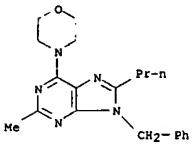


L3 ANSWER 3 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

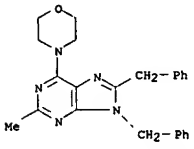
RN 862773-97-5 CAPLUS
CN 9H-Purine, 2,8-dimethyl-6-(4-morpholinyl)-9-(phenylmethyl)- (9CI) (CA INDEX NAME)



RN 862774-03-6 CAPLUS
CN 9H-Purine, 2-methyl-6-(4-morpholinyl)-9-(phenylmethyl)-8-propyl- (9CI) (CA INDEX NAME)

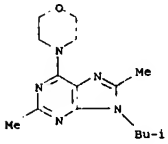


RN 862774-15-0 CAPLUS
CN 9H-Purine, 2-methyl-6-(4-morpholinyl)-8,9-bis(phenylmethyl)- (9CI) (CA INDEX NAME)

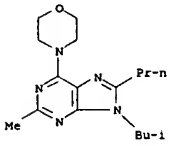


RN 862774-33-2 CAPLUS
CN 9H-Purine, 9-butyl-2,8-dimethyl-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

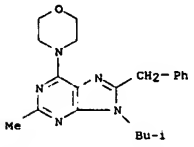
L3 ANSWER 3 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 862774-75-2 CAPLUS
CN 9H-Purine, 2-methyl-9-(2-methylpropyl)-6-(4-morpholinyl)-8-propyl- (9CI) (CA INDEX NAME)

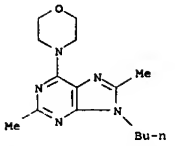


RN 862774-87-6 CAPLUS
CN 9H-Purine,
2-methyl-9-(2-methylpropyl)-6-(4-morpholinyl)-8-(phenylmethyl)-
(9CI) (CA INDEX NAME)

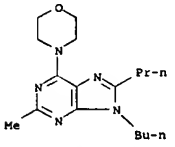


RN 862775-07-3 CAPLUS
CN 9H-Purine, 9-cyclohexyl-2,8-dimethyl-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

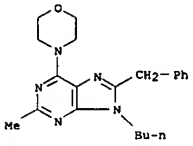
L3 ANSWER 3 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 862774-39-8 CAPLUS
CN 9H-Purine, 9-butyl-2-methyl-6-(4-morpholinyl)-8-propyl- (9CI) (CA INDEX NAME)

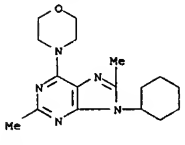


RN 862774-51-4 CAPLUS
CN 9H-Purine, 9-butyl-2-methyl-6-(4-morpholinyl)-8-(phenylmethyl)- (9CI) (CA
INDEX NAME)

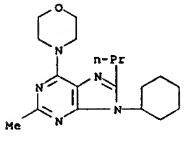


RN 862774-69-4 CAPLUS
CN 9H-Purine, 2,8-dimethyl-9-(2-methylpropyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

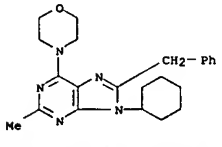
L3 ANSWER 3 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 862775-13-1 CAPLUS
CN 9H-Purine, 9-cyclohexyl-2-methyl-6-(4-morpholinyl)-8-propyl- (9CI) (CA INDEX NAME)

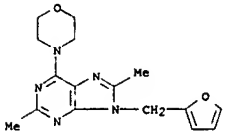


RN 862775-25-5 CAPLUS
CN 9H-Purine, 9-cyclohexyl-2-methyl-6-(4-morpholinyl)-8-(phenylmethyl)-
(9CI)
(CA INDEX NAME)

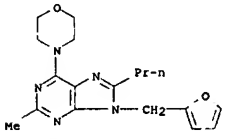


RN 862775-43-7 CAPLUS
CN 9H-Purine, 9-(2-furanylmethyl)-2,8-dimethyl-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

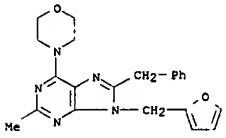
L3 ANSWER 3 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 862775-49-3 CAPLUS
CN 9H-Purine, 9-(2-furanylmethyl)-2-methyl-6-(4-morpholinyl)-8-propyl- (9CI) (CA INDEX NAME)



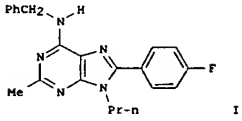
RN 862775-62-0 CAPLUS
CN 9H-Purine, 9-(2-furanylmethyl)-2-methyl-6-(4-morpholinyl)-8-(phenylmethyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 4 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:200119 CAPLUS
DOCUMENT NUMBER: 142:430225
TITLE: Preparation of a fully substituted purine library
AUTHOR(S): Yang, Jianxin; Dang, Qun; Liu, Jinglin; Wei, Zhonglin; Wu, Jinchang; Bai, Xu
CORPORATE SOURCE: The Center for Combinatorial Chemistry and Drug Discovery, Jilin University, Changchun, Jilin, 130012, Peop. Rep. China
SOURCE: Journal of Combinatorial Chemistry (2005), 7(3), 474-482
CODEN: JCCHFF; ISSN: 1520-4766
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 142:430225
GI



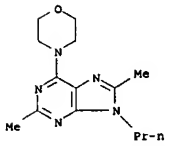
I

AB A library of tetra-substituted purine analogs, e.g., I, was readily prepared via parallel synthesis. This strategy relied on a key cyclization of a 4,5-diaminopyrimidine with either a carboxylic acid or its derivative to construct the 2,8,9-trisubstituted 6-chloropurine core. Further elaborations of this core allowed the introduction of other diversity points. This methodol. was demonstrated through the preparation of a 135-membered library of tetra-substituted purines in good yields and high purity.

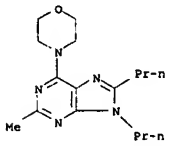
IT **850870-89-2P 850870-99-4P 850871-51-1P**
850871-58-8P 850871-64-6P 850871-70-4P
850871-82-8P 850871-94-2P 850872-04-7P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of purines via amination of amino(dichloro)pyrimidines with amines followed by heterocyclization with carbonyl derivs. and substitution with amines)

RN 850870-89-2 CAPLUS
CN 9H-Purine, 2,8-dimethyl-6-(4-morpholinyl)-9-propyl- (9CI) (CA INDEX NAME)

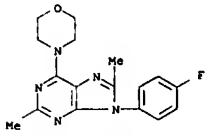
L3 ANSWER 4 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 850870-99-4 CAPLUS
CN 9H-Purine, 2-methyl-6-(4-morpholinyl)-8,9-dipropyl- (9CI) (CA INDEX NAME)

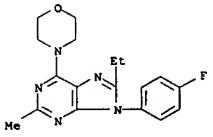


RN 850871-51-1 CAPLUS
CN 9H-Purine, 9-(4-fluorophenyl)-2,8-dimethyl-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

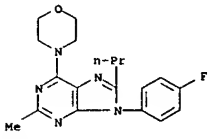


RN 850871-58-8 CAPLUS
CN 9H-Purine, 8-ethyl-9-(4-fluorophenyl)-2-methyl-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

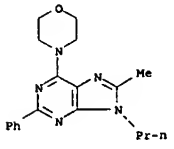
L3 ANSWER 4 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 850871-64-6 CAPLUS
CN 9H-Purine, 9-(4-fluorophenyl)-2-methyl-6-(4-morpholinyl)-8-propyl- (9CI) (CA INDEX NAME)

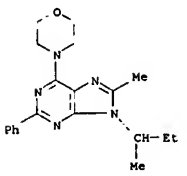


RN 850871-70-4 CAPLUS
CN 9H-Purine, 8-methyl-6-(4-morpholinyl)-2-phenyl-9-propyl- (9CI) (CA INDEX NAME)

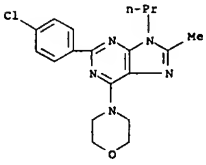


RN 850871-82-8 CAPLUS
CN 9H-Purine, 8-methyl-9-(1-methylpropyl)-6-(4-morpholinyl)-2-phenyl- (9CI) (CA INDEX NAME)

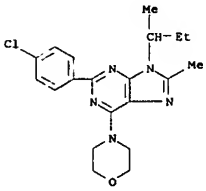
L3 ANSWER 4 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 850871-94-2 CAPLUS
CN 9H-Purine, 2-(4-chlorophenyl)-8-methyl-6-(4-morpholinyl)-9-propyl- (9CI) (CA INDEX NAME)



RN 850872-04-7 CAPLUS
CN 9H-Purine, 2-(4-chlorophenyl)-8-methyl-9-(1-methylpropyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS

L3 ANSWER 4 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:14275 CAPLUS
DOCUMENT NUMBER: 142:114106
TITLE: Preparation of heterocyclic compounds for preventing and treating disorders associated with excessive bone loss
INVENTOR(S): Ono, Mitsunori; Sun, Lijun; Wada, Yumiko; Koya, Keizo; Nagai, Masazumi
PATENT ASSIGNEE(S): Synta Pharmaceuticals, Corp., USA
SOURCE: PCT Int. Appl., 151 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

filed 5/04
priority 5/03

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005000404	A2	20050106	WO 2004-US17064	20040528
WO 2005000404	A3	20050915		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2004251641	A1	20050106	AU 2004-251641	20040528
CA 2527079	AA	20050106	CA 2004-2527079	20040528
EP 1626725	A2	20060222	EP 2004-776190	20040528
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				

PRIORITY APPLN. INFO.:
US 2003-474410P P 20030529
US 2003-474502P P 20030529
US 2003-474550P P 20030529
WO 2004-US17064 W 20040528

OTHER SOURCE(S): MARPAT 142:114106
GI

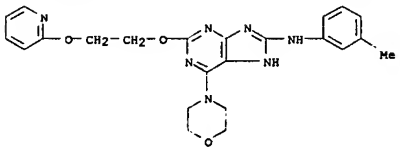
* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB This invention relates to pyrimidines I [R1 = N:CRaRb, (hetero)aryl; R2, R4 = Rc, halo, NO2, etc.; or R2 and R4 taken together, = carbonyl; R3 = Rc, alkenyl, alkynyl, etc.; R5 = H, alkyl; n = 0-6; X = O, S, SO, SO2, NRc; Y = a bond, CH2, CO, etc.; Z = N, CH; one of U and V = N, and the other = CRc; W = O, S, SO, SO2, NRc, NCORc; Ra, Rb = H, alkyl, (hetero)aryl; Rc = H, alkyl, (hetero)aryl, (hetero)cyclyl, alkylcarbonyl], triazines II [R1 = N:CRaRb, (hetero)aryl; R2, R4, R5 = Rc, halo, NO2, etc.; R3 = Rc, alkenyl, alkynyl, etc.; n = 0-7; X = O, S, SO, SO2, NRc; Y = a bond, CH2, CO, etc.; Z = N; W = O, S, SO, SO2, NRc, NCORc; Ra, Rb = H, alkyl, (hetero)aryl; Rc = H, alkyl, alkylcarbonyl] and purines III [R1 = (hetero)aryl; R2, R4 = H, halo, CN, etc.; R3 = H, halo, CN, alkyl, etc.; R5 = H, alkyl; n = 0-6; A = O, S, SO, SO2, NRe; B = N, CRf; X = O, S, SO, SO2, NRe, CO; Y = a bond, CH2, CO, C:NRa, O, S, SO, SO2, NRe; Z = N, CH; each of U and V = N, CR; W = O, S, NRe; Ra = H, alkyl, (hetero)aryl, (hetero)cyclyl; Re = H, alkyl, aryl, acyl, sulfonyl; Rf = H, alkyl, aryl, etc.] and pharmaceutically acceptable salts, solvates, clathrates, and prodrugs thereof. E.g., a multi-step synthesis of IV, starting from 3-(3,4-dimethoxyphenyl)propyl iodide and 2,4-dichloro-6-morpholinopyrimidine, was given. The compds. I were tested for inhibition of osteoclast formation (data given for representative compds. I). This invention also relates to compns. comprising the compds. I and methods for using them. The compds. and compns. of this invention are useful to treat or prevent disorders assocd. with excessive bone loss, including, without limitation periodontal disease, non-malignant bone disorders (such as osteoporosis, Paget's disease of bone, osteogenesis imperfecta, fibrous dysplasia, and primary hyperparathyroidism), estrogen deficiency, inflammatory bone loss, bone malignancy, arthritis, osteopetrosis, and certain cancer-related disorders (such as hypercalcemia of malignancy (HCM), osteolytic bone lesions of multiple myeloma and osteolytic bone metastases of breast cancer and other metastatic cancers).

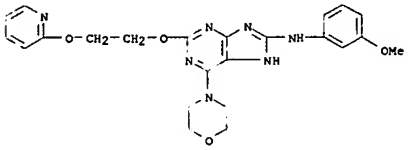
IT 682337-10-6P 682337-12-8P 682337-14-0P
682337-16-2P 682337-18-4P 682337-20-8P
682337-22-0P 682337-24-2P 682337-26-4P
682337-28-6P 682337-30-0P 682337-32-2P
682337-34-4P 682337-36-6P 682337-38-8P
682337-40-2P 682337-42-4P 682337-44-6P
682337-46-8P 682337-48-0P 682337-50-4P
682337-51-5P 682337-52-6P 682337-53-7P
682337-54-8P 682337-55-9P 682337-56-0P
682337-57-1P 682337-58-2P 682337-60-6P
682337-62-8P 682337-64-0P 682337-65-1P
682337-66-2P 682337-67-3P 682337-68-4P
682337-69-5P 682337-70-8P 682337-71-9P
682337-72-0P 682337-74-2P 682337-75-3P
682337-76-4P 682337-77-5P 682337-79-7P
682337-80-0P 820230-62-4P 820230-63-5P
820230-64-6P 820230-65-7P
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of pyrimidines, triazines and purines for preventing and treating disorders associated with excessive bone loss)

RN 682337-10-6 CAPLUS
CN 1H-Purin-8-amine, N-(3-methylphenyl)-6-(4-morpholinyl)-2-[2-(2-pyridinyloxy)ethoxy]- (9CI) (CA INDEX NAME)

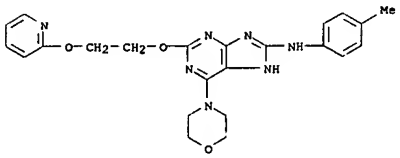
L3 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-12-8 CAPLUS
CN 1H-Purin-8-amine, N-(3-methoxyphenyl)-6-(4-morpholinyl)-2-[2-(2-pyridinyloxy)ethoxy]- (9CI) (CA INDEX NAME)

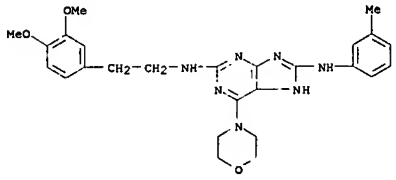


RN 682337-14-0 CAPLUS
CN 1H-Purin-8-amine, N-(4-methylphenyl)-6-(4-morpholinyl)-2-[2-(2-pyridinyloxy)ethoxy]- (9CI) (CA INDEX NAME)

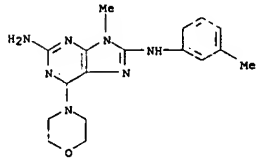


RN 682337-16-2 CAPLUS
CN 1H-Purine-2,8-diamine, N2-[2-(3,4-dimethoxyphenyl)ethyl]-N8-(4-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

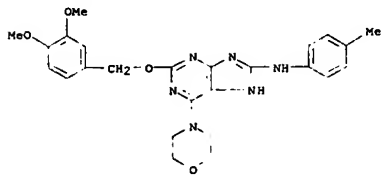
L3 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-24-2 CAPLUS
CN 9H-Purine-2,8-diamine, 9-methyl-N8-(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

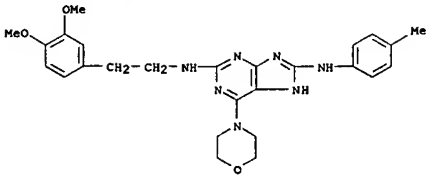


RN 682337-26-4 CAPLUS
CN 1H-Purin-8-amine, 2-[(3,4-dimethoxyphenyl)methoxy]-N-(4-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

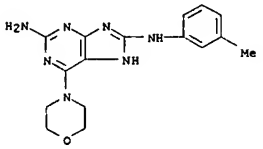


RN 682337-28-6 CAPLUS
CN 1H-Purine-2,8-diamine, N2-(4-methoxyphenyl)-N2-methyl-N8-(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

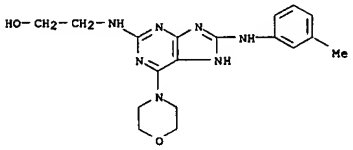
L3 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-18-4 CAPLUS
CN 1H-Purine-2,8-diamine, N8-(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

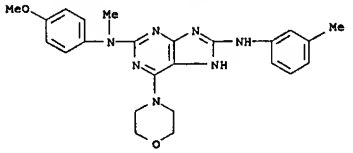


RN 682337-20-8 CAPLUS
CN Ethanol, 2-[[8-[(3-methylphenyl)amino]-6-(4-morpholinyl)-1H-purin-2-yl]amino]- (9CI) (CA INDEX NAME)

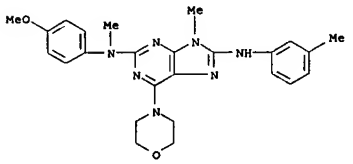


RN 682337-22-0 CAPLUS
CN 1H-Purine-2,8-diamine, N2-[2-(3,4-dimethoxyphenyl)ethyl]-N8-(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

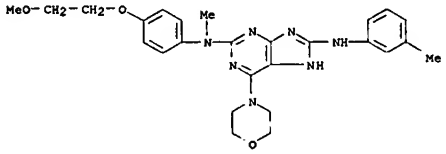
L3 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-30-0 CAPLUS
CN 9H-Purine-2,8-diamine, N2-(4-methoxyphenyl)-N2,9-dimethyl-N8-(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

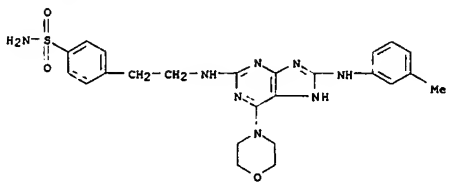


RN 682337-32-2 CAPLUS
CN 1H-Purine-2,8-diamine, N2-[4-(2-methoxyethoxy)phenyl]-N2-methyl-N8-(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

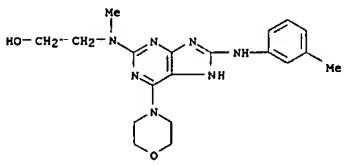


RN 682337-34-4 CAPLUS
CN Benzenesulfonamide, 4-[2-[[8-[(3-methylphenyl)amino]-6-(4-morpholinyl)-1H-purin-2-yl]amino]ethyl]- (9CI) (CA INDEX NAME)

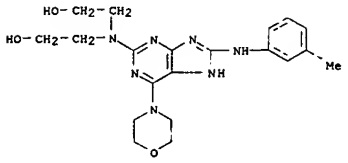
L3 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-36-6 CAPLUS
CN Ethanol, 2-[methyl[8-[(3-methylphenyl)amino]-6-(4-morpholinyl)-1H-purin-2-yl]amino]- (9CI) (CA INDEX NAME)

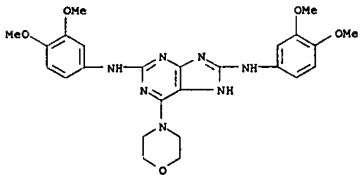


RN 682337-38-8 CAPLUS
CN Ethanol, 2,2'-[[8-[(3-methylphenyl)amino]-6-(4-morpholinyl)-7H-purin-2-yl]imino]bis- (9CI) (CA INDEX NAME)

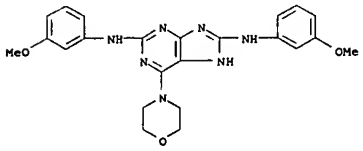


RN 682337-40-2 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(3-methylphenyl)-6-(4-morpholinyl)- (9CI)

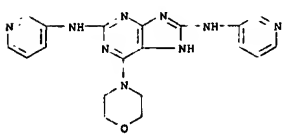
L3 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-48-0 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(3-methoxyphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

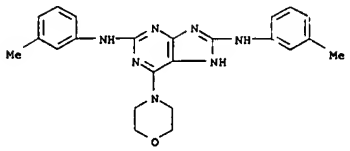


RN 682337-50-4 CAPLUS
CN 1H-Purine-2,8-diamine, 6-(4-morpholinyl)-N,N'-di-3-pyridinyl- (9CI) (CA INDEX NAME)

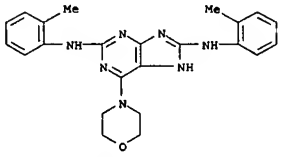


RN 682337-51-5 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(3-fluorophenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

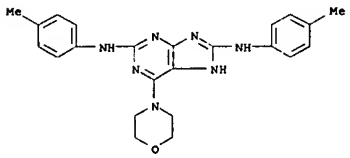
L3 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
(CA INDEX NAME)



RN 682337-42-4 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(2-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

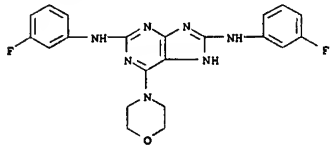


RN 682337-44-6 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(4-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

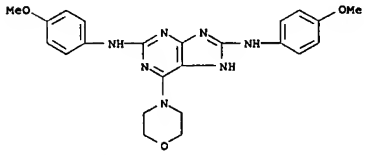


RN 682337-46-8 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(3,4-dimethoxyphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

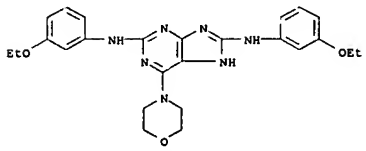
L3 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-52-6 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(4-methoxyphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

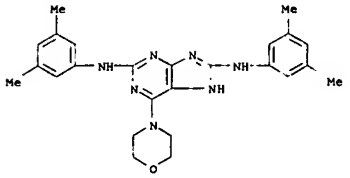


RN 682337-53-7 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(3-ethoxyphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

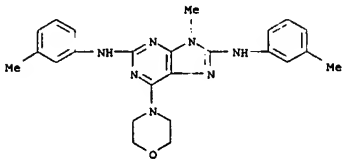


RN 682337-54-8 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(3,5-dimethylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

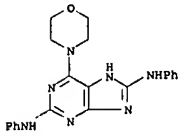
L3 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-55-9 CAPLUS
CN 9H-Purine-2,8-diamine, 9-methyl-N,N'-bis(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

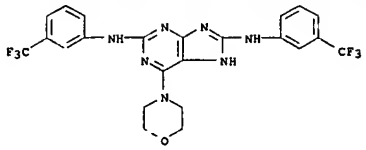


RN 682337-56-0 CAPLUS
CN 1H-Purine-2,8-diamine, 6-(4-morpholinyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)

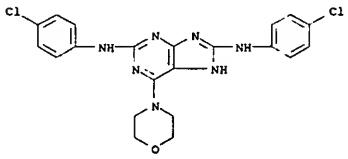


RN 682337-57-1 CAPLUS
CN 1H-Purine-2,8-diamine, 6-(4-morpholinyl)-N,N'-bis[3-(trifluoromethyl)phenyl]- (9CI) (CA INDEX NAME)

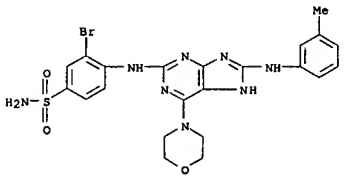
L3 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-58-2 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(4-chlorophenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

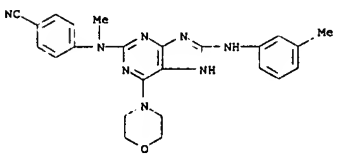


RN 682337-60-6 CAPLUS
CN Benzenesulfonamide, 3-bromo-4-[[8-[(3-methylphenyl)amino]-6-(4-morpholinyl)-1H-purin-2-yl]amino]- (9CI) (CA INDEX NAME)

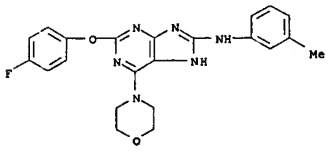


RN 682337-62-8 CAPLUS
CN Benzonitrile, 4-[methyl[8-[(3-methylphenyl)amino]-6-(4-morpholinyl)-1H-purin-2-yl]amino]- (9CI) (CA INDEX NAME)

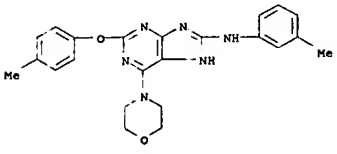
L3 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-64-0 CAPLUS
CN 1H-Purin-8-amine, 2-(4-fluorophenoxy)-N-(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

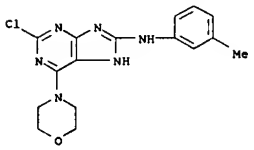


RN 682337-65-1 CAPLUS
CN 1H-Purin-8-amine, 2-(4-methylphenoxy)-N-(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

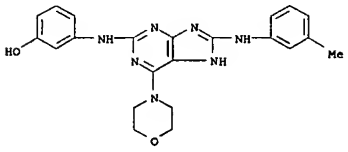


RN 682337-66-2 CAPLUS
CN 1H-Purin-8-amine, 2-chloro-N-(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

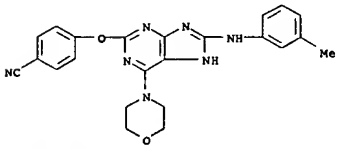
L3 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-67-3 CAPLUS
CN Phenol, 3-[[8-[(3-methylphenyl)amino]-6-(4-morpholinyl)-1H-purin-2-yl]amino]- (9CI) (CA INDEX NAME)

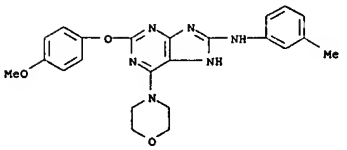


RN 682337-68-4 CAPLUS
CN Benzonitrile, 4-[[8-[(3-methylphenyl)amino]-6-(4-morpholinyl)-1H-purin-2-yl]oxy]- (9CI) (CA INDEX NAME)

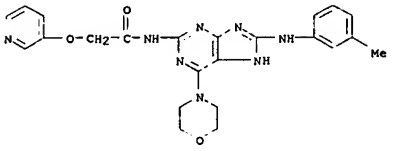


RN 682337-69-5 CAPLUS
CN 1H-Purin-8-amine, 2-(4-methoxyphenoxy)-N-(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

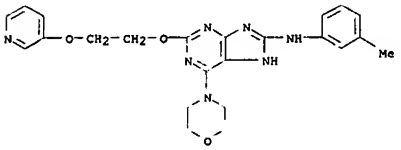
L3 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-70-8 CAPLUS
CN Acetamide, N-[8-[(3-methylphenyl)amino]-6-(4-morpholinyl)-1H-purin-2-yl]-2-(3-pyridinyloxy)- (9CI) (CA INDEX NAME)

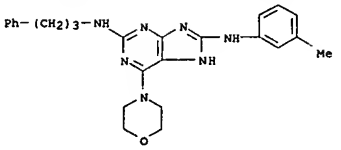


RN 682337-71-9 CAPLUS
CN 1H-Purin-8-amine, N-(3-methylphenyl)-6-(4-morpholinyl)-2-[2-(3-pyridinyloxy)ethoxy]- (9CI) (CA INDEX NAME)

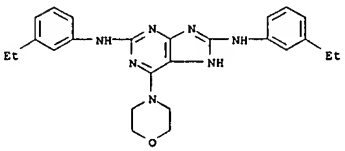


RN 682337-72-0 CAPLUS
CN 1H-Purine-2,8-diamine, N8-(3-methylphenyl)-6-(4-morpholinyl)-N2-(3-phenylpropyl)- (9CI) (CA INDEX NAME)

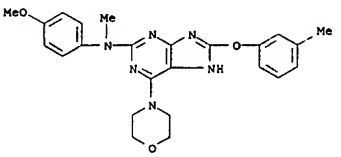
L3 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-74-2 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(3-ethylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

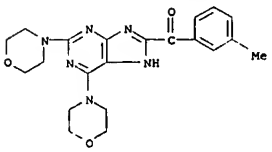


RN 682337-75-3 CAPLUS
CN 1H-Purin-2-amine, N-(4-methoxyphenyl)-N-methyl-8-(3-methylphenoxy)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

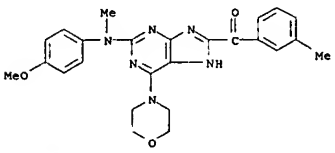


RN 682337-76-4 CAPLUS
CN Methanone, (2,6-di-4-morpholinyl-1H-purin-8-yl)(3-methylphenyl)- (9CI) (CA INDEX NAME)

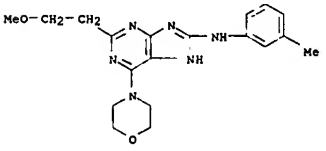
L3 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-77-5 CAPLUS
CN Methanone, [2-[(4-methoxyphenyl)methylamino]-6-(4-morpholinyl)-1H-purin-8-yl](3-methylphenyl)- (9CI) (CA INDEX NAME)

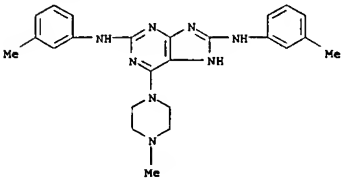


RN 682337-79-7 CAPLUS
CN 1H-Purin-8-amine, 2-(2-methoxyethyl)-N-(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

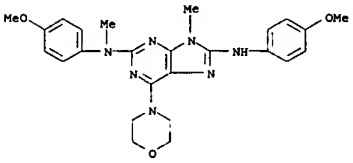


RN 682337-80-0 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(3-methylphenyl)-6-(4-methyl-1-piperazinyl)- (9CI) (CA INDEX NAME)

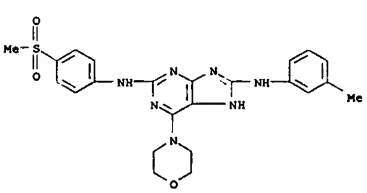
L3 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 820230-62-4 CAPLUS
CN 9H-Purine-2,8-diamine, N2,N8-bis(4-methoxyphenyl)-N2,9-dimethyl-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

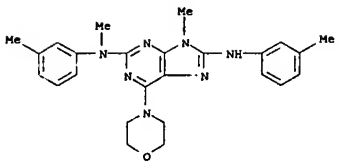


RN 820230-63-5 CAPLUS
CN 1H-Purine-2,8-diamine, N8-(3-methylphenyl)-N2-[4-(methylsulfonyl)phenyl]-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

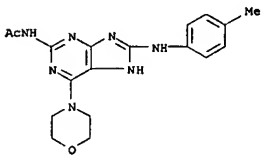


RN 820230-64-6 CAPLUS
CN 9H-Purine-2,8-diamine, N2,9-dimethyl-N2,N8-bis(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

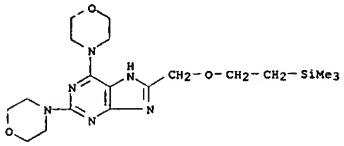
L3 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 820230-65-7 CAPLUS
CN Acetamide, N-[8-[(4-methylphenyl)amino]-6-(4-morpholinyl)-1H-purin-2-yl]- (9CI) (CA INDEX NAME)

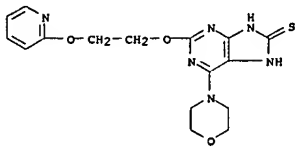


IT **820230-70-4P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of pyrimidines, triazines and purines for preventing and treating disorders associated with excessive bone loss)
RN 820230-70-4 CAPLUS
CN 1H-Purine, 2,6-di-4-morpholinyl-8-[[2-(trimethylsilyl)ethoxy]methyl]- (9CI) (CA INDEX NAME)



IT **682337-83-3P**

L3 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of pyrimidines, triazines and purines for preventing and treating disorders assocd. with excessive bone loss)
RN 682337-83-3 CAPLUS
CN 8H-Purine-8-thione, 1,7-dihydro-6-(4-morpholinyl)-2-[2-(2-pyridinyloxy)ethoxy]- (9CI) (CA INDEX NAME)



L3 ANSWER 6 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:493703 CAPLUS
DOCUMENT NUMBER: 141:54356
TITLE: Preparation of 1,3-dihydroimidazole fused-ring compounds as dipeptidylpeptidase IV (DPP-IV) inhibitors
INVENTOR(S): Kira, Kazunobu; Clark, Richard; Yoshikawa, Seiji; Uehara, Taisuke
PATENT ASSIGNEE(S): Eisai Co., Ltd., Japan
SOURCE: PCT Int. Appl., 143 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004050656	A1	20040617	WO 2003-JP15402	20031202
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2507763	AA	20040617	CA 2003-2507763	20031202
AU 2003302657	A2	20040623	AU 2003-302657	20031202
AU 2003302657	A1	20040623		
EP 1568699	A1	20050831	EP 2003-812368	20031202
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
BR 2003016991	A	20051025	BR 2003-16991	20031202
CN 1745080	A	20060308	CN 2003-80109519	20031202
NO 2005003246	A	20050830	NO 2005-3246	20050701
US 2006111362	A1	20060525	US 2005-537227	20051227
PRIORITY APPLN. INFO.:			JP 2002-352186 A	20021204
			WO 2003-JP15402 W	20031202

OTHER SOURCE(S): MARPAT 141:54356
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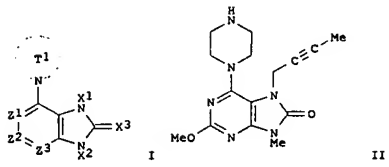
L3 ANSWER 6 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

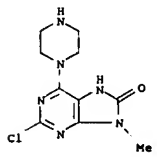


I II

AB Title compds. I [wherein T1 = (un)substituted 1-2 nitrogen containing cyclic
ring; X1 = (un)substituted alkyl, alkenyl, (hetero)allyl, etc.; X3 = O, S,
(un)substituted amino; Z1 = N or CR3; Z2, Z3 = independently N, CR1, CO, NR2; R1-R3, X2 = H, (un)substituted heterocyclic ring or (un)substituted alkylene; and their salts or hydrates thereof] were prepared as dipeptidylpeptidase IV (DPP-IV) inhibitors. For example, II•CF3CO2H was prepared in 6-steps synthesis starting from 3,7-dihydro-3-methyl-1H-purine-2,6-dione. I showed DPP-IV inhibition with the IC50 value of 0.0029-89.5 μM. Thus, I and their pharmaceutical compns. are useful as DPP-IV inhibitors for the treatment of diabetes mellitus, obesity, hyperlipemia, and etc. (no data).
IT **705299-36-1P**
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of 7,9-dihydropurine and 2,3-dihydroimidazo[4,5-c]pyridine derivs. as DPP-IV inhibitors)
RN 705299-36-1 CAPLUS
CN 8H-Purin-8-one, 2-chloro-7,9-dihydro-9-methyl-6-(1-piperazinyl)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

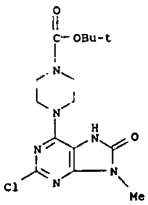
CRN 705299-35-0
CMF C10 H13 Cl N6 O



L3 ANSWER 6 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
CM 2

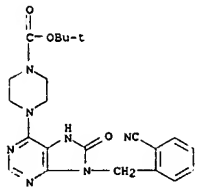
CRN 76-05-1
CMF C2 H F3 O2

IT 705300-60-3P 705300-66-9P 705300-71-6P
705300-83-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of 7,9-dihydropurine and 2,3-dihydroimidazo[4,5-c]pyridine derivs. as DPP-IV inhibitors)
RN 705300-60-3 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-(2-chloro-8,9-dihydro-9-methyl-8-oxo-7H-purin-6-yl)-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



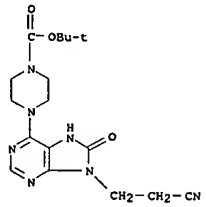
RN 705300-66-9 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-[9-(2-cyanoethyl)-8,9-dihydro-8-oxo-7H-purin-6-yl]-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

L3 ANSWER 6 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

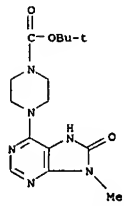


REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

L3 ANSWER 6 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 705300-71-6 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-(8,9-dihydro-9-methyl-8-oxo-7H-purin-6-yl)-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



RN 705300-83-0 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-[9-[(2-cyanophenyl)methyl]-8,9-dihydro-8-oxo-7H-purin-6-yl]-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

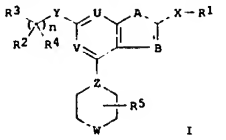
L3 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:355045 CAPLUS
DOCUMENT NUMBER: 140:357119
TITLE: Preparation of amino morpholinopurine derivatives for treating interleukin-12 overprodation-related disorders
INVENTOR(S): Sun, Lijun; Ono, Mitsunori; Wada, Yumiko; Ying, Weiwen; Przewloka, Teresa; Kostik, Elena
PATENT ASSIGNEE(S): Synta Pharmaceuticals Corp., USA
SOURCE: PCT Int. Appl., 68 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004035740	A2	20040429	WO 2003-US32546	20031014
WO 2004035740	A3	20041216		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2502356	AA	20040429	CA 2003-2502356	20031014
AU 2003284142	A1	20040504	AU 2003-284142	20031014
US 2004198725	A1	20041007	US 2003-686505	20031014
EP 1556140	A2	20050727	EP 2003-776373	20031014
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2006507273	T2	20060302	JP 2004-545265	20031014
PRIORITY APPLN. INFO.:			US 2002-418984P	P 20021015
			WO 2003-US32546	W 20031014

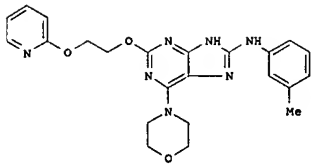
OTHER SOURCE(S): MARPAT 140:357119
GI

Instant App

L3 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



I



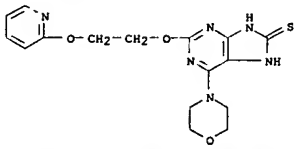
II

AB The title compds. I [R1 = (hetero)aryl; R2, R4 = H, halo, CN, alkyl, etc.; R3 = H, halo, CN, alkyl, alkenyl, alkynyl, aryl, heteroaryl, (hetero)cyclyl, etc.; R5 = H or alkyl; n = 0-6; A = O, S, SO, SO2, etc; B = N or CRa; X = O, S, SO, SO2, etc; Y = a bond, CO, C=NRb, O, S, SO, SO2, etc; Z = N or CH; U, V = N or CRa; W = O, S, NRc; Ra = H, alkyl, aryl, acyl, sulfonyl, etc.; Rb = H, alkyl, (hetero)aryl, (hetero)cyclyl; Rc = H, alkyl, aryl, acyl, sulfonyl; with provisos] were prepared for treating interleukin-12 overprodation-related disorders. Thus, reaction of 5,6-diamino-2-[2-(pyridin-2-yloxy)-ethoxy]-4-morpholinopyrimidine (preparation given) with m-tolyl isocyanate yielded compound II. The prepared compds. were assayed on human PBMC or THP-1 cell and showed IC50 < 1 nM.

IT **682337-83-3P**
RL: BYP (Byproduct); PREP (Preparation)
(preparation of amino morpholinopurine derivs. for treating interleukin-12 overprodn.-related disorders)

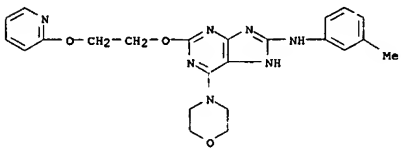
RN 682337-83-3 CAPLUS
CN 8H-Purine-8-thione, 1,7-dihydro-6-(4-morpholinyl)-2-[2-(2-pyridinyloxy)ethoxy]- (9CI) (CA INDEX NAME)

L3 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



IT **682337-10-6P 682337-12-8P 682337-14-0P**
682337-16-2P 682337-18-4P 682337-20-8P
682337-22-0P 682337-24-2P 682337-26-4P
682337-28-6P 682337-30-0P 682337-32-2P
682337-34-4P 682337-36-6P 682337-38-8P
682337-40-2P 682337-42-4P 682337-44-6P
682337-46-8P 682337-48-0P 682337-50-4P
682337-51-5P 682337-52-6P 682337-53-7P
682337-54-8P 682337-55-9P 682337-56-0P
682337-57-1P 682337-58-2P 682337-59-3P
682337-60-6P 682337-61-7P 682337-62-8P
682337-63-9P 682337-64-0P 682337-65-1P
682337-66-2P 682337-67-3P 682337-68-4P
682337-69-5P 682337-70-8P 682337-71-9P
682337-72-0P 682337-73-1P 682337-74-2P
682337-75-3P 682337-76-4P 682337-77-5P
682337-79-7P 682337-80-0P 682337-81-1P
682337-82-2P 682337-84-4P
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of amino morpholinopurine derivs. for treating interleukin-12 overprodn.-related disorders)

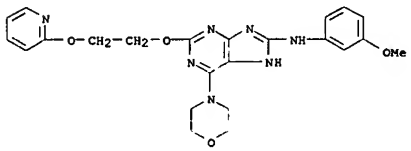
RN 682337-10-6 CAPLUS
CN 1H-Purin-8-amine, N-(3-methylphenyl)-6-(4-morpholinyl)-2-[2-(2-pyridinyloxy)ethoxy]- (9CI) (CA INDEX NAME)



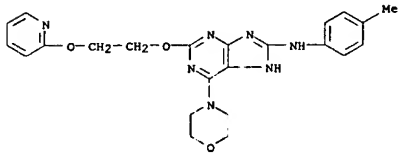
RN 682337-12-8 CAPLUS

L3 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

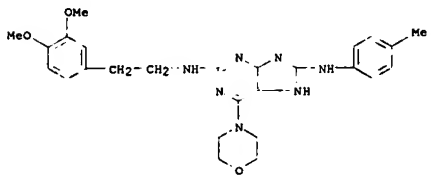
CN 1H-Purin-8-amine, N-(3-methoxyphenyl)-6-(4-morpholinyl)-2-[2-(2-pyridinyloxy)ethoxy]- (9CI) (CA INDEX NAME)



RN 682337-14-0 CAPLUS
CN 1H-Purin-8-amine, N-(4-methylphenyl)-6-(4-morpholinyl)-2-[2-(2-pyridinyloxy)ethoxy]- (9CI) (CA INDEX NAME)

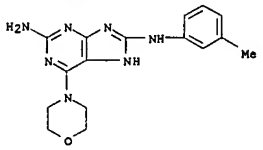


RN 682337-16-2 CAPLUS
CN 1H-Purine-2,8-diamine, N2-[2-(3,4-dimethoxyphenyl)ethyl]-N8-(4-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

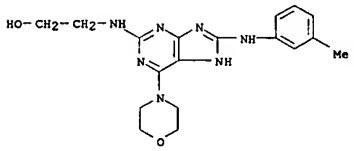


RN 682337-18-4 CAPLUS
CN 1H-Purine-2,8-diamine, N8-(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

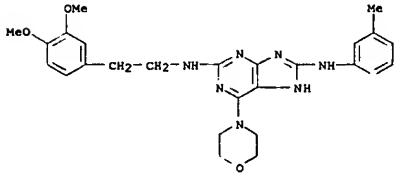
L3 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-20-8 CAPLUS
CN Ethanol, 2-[[8-[(3-methylphenyl)amino]-6-(4-morpholinyl)-1H-purin-2-yl]amino]- (9CI) (CA INDEX NAME)

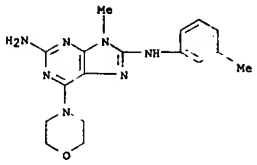


RN 682337-22-0 CAPLUS
CN 1H-Purine-2,8-diamine, N2-[2-(3,4-dimethoxyphenyl)ethyl]-N8-(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

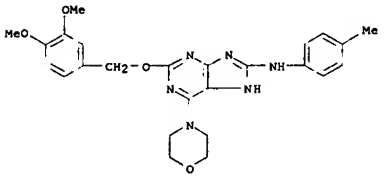


RN 682337-24-2 CAPLUS
CN 9H-Purine-2,8-diamine, 9-methyl-N8-(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

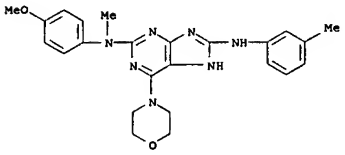
L3 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-26-4 CAPLUS
CN 1H-Purin-8-amine, 2-[(3,4-dimethoxyphenyl)methoxy]-N-(4-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

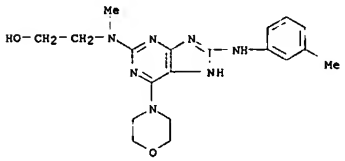


RN 682337-28-6 CAPLUS
CN 1H-Purine-2,8-diamine, N2-(4-methoxyphenyl)-N2-methyl-N8-(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

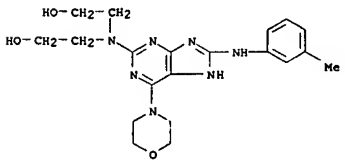


RN 682337-30-0 CAPLUS
CN 9H-Purine-2,8-diamine, N2-(4-methoxyphenyl)-N2,9-dimethyl-N8-(3-

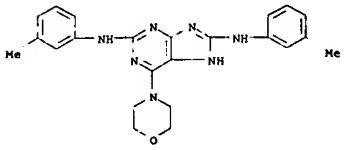
L3 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
RN 682337-36-6 CAPLUS
CN Ethanol, 2-(methyl[8-[(3-methylphenyl)amino]-6-(4-morpholinyl)-1H-purin-2-yl]amino]- (9CI) (CA INDEX NAME)



RN 682337-38-8 CAPLUS
CN Ethanol, 2,2'-[[8-[(3-methylphenyl)amino]-6-(4-morpholinyl)-7H-purin-2-yl]imino]bis- (9CI) (CA INDEX NAME)

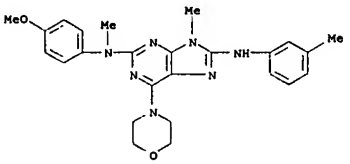


RN 682337-40-2 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

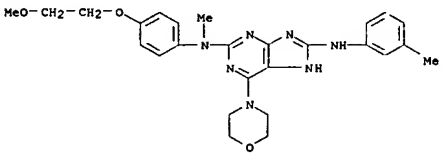


RN 682337-42-4 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(2-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

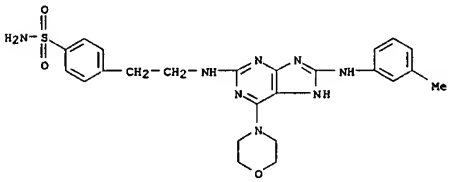
L3 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)



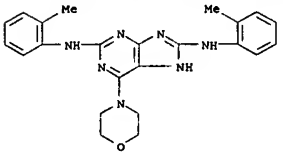
RN 682337-32-2 CAPLUS
CN 1H-Purine-2,8-diamine, N2-[4-(2-methoxyethoxy)phenyl]-N2-methyl-N8-(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)



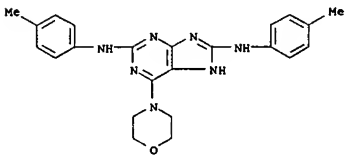
RN 682337-34-4 CAPLUS
CN Benzenesulfonamide, 4-[2-[[8-[(3-methylphenyl)amino]-6-(4-morpholinyl)-1H-purin-2-yl]amino]ethyl]- (9CI) (CA INDEX NAME)



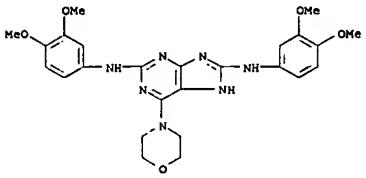
L3 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-44-6 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(4-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

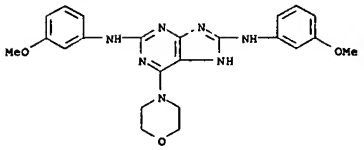


RN 682337-46-8 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(3,4-dimethoxyphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

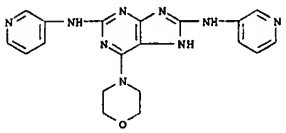


RN 682337-48-0 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(3-methoxyphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

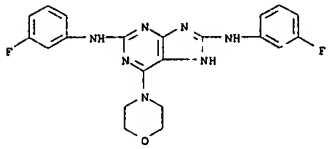
L3 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-50-4 CAPLUS
CN 1H-Purine-2,8-diamine, 6-(4-morpholinyl)-N,N'-di-3-pyridinyl- (9CI) (CA INDEX NAME)

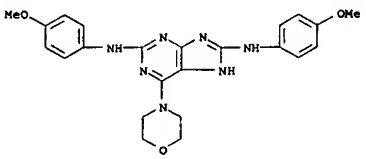


RN 682337-51-5 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(3-fluorophenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

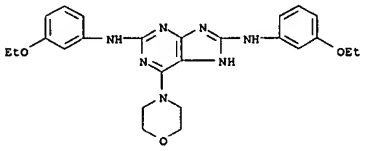


RN 682337-52-6 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(4-methoxyphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

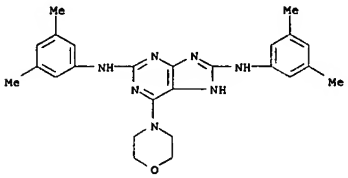
L3 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-53-7 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(3-ethoxyphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

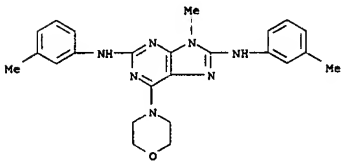


RN 682337-54-8 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(3,5-dimethylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

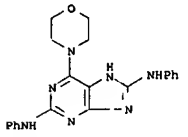


RN 682337-55-9 CAPLUS
CN 9H-Purine-2,8-diamine, 9-methyl-N,N'-bis(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

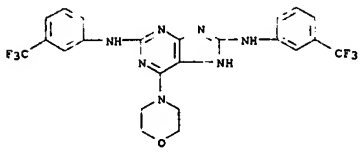
L3 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-56-0 CAPLUS
CN 1H-Purine-2,8-diamine, 6-(4-morpholinyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)

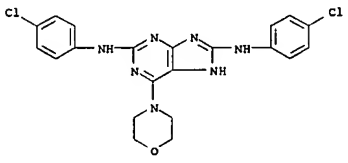


RN 682337-57-1 CAPLUS
CN 1H-Purine-2,8-diamine, 6-(4-morpholinyl)-N,N'-bis[3-(trifluoromethyl)phenyl]- (9CI) (CA INDEX NAME)

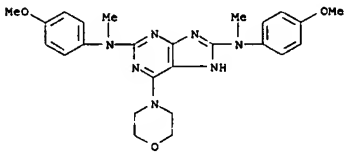


RN 682337-58-2 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(4-chlorophenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

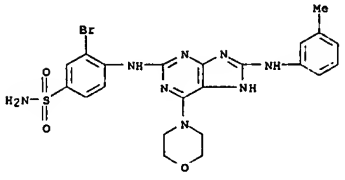
L3 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-59-3 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(4-methoxyphenyl)-N,N'-dimethyl-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

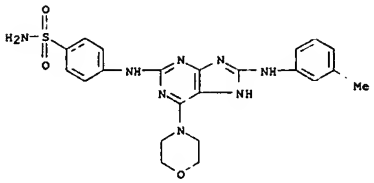


RN 682337-60-6 CAPLUS
CN Benzenesulfonamide, 3-bromo-4-[[8-[(3-methylphenyl)amino]-6-(4-morpholinyl)-1H-purin-2-yl]amino]- (9CI) (CA INDEX NAME)

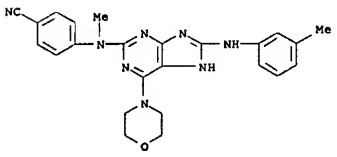


RN 682337-61-7 CAPLUS
CN Benzenesulfonamide, 4-[[8-[(3-methylphenyl)amino]-6-(4-morpholinyl)-1H-purin-2-yl]amino]- (9CI) (CA INDEX NAME)

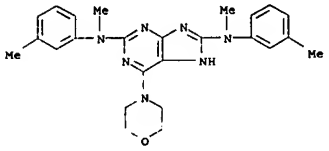
L3 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-62-8 CAPLUS
CN Benzonitrile, 4-{methyl[8-[(3-methylphenyl)amino]-6-(4-morpholinyl)-1H-purin-2-yl]amino]- (9CI) (CA INDEX NAME)

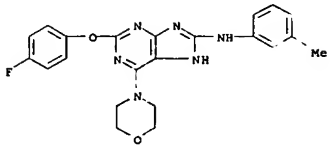


RN 682337-63-9 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-dimethyl-N,N'-bis(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

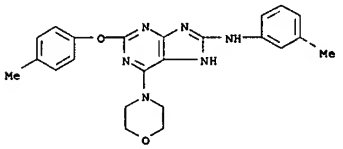


RN 682337-64-0 CAPLUS
CN 1H-Purin-8-amine, 2-(4-fluorophenoxy)-N-(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

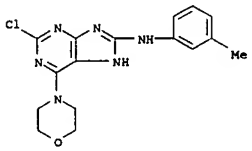
L3 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-65-1 CAPLUS
CN 1H-Purin-8-amine, 2-(4-methylphenoxy)-N-(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

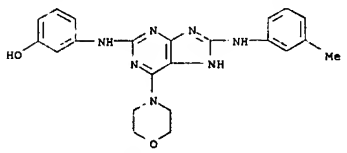


RN 682337-66-2 CAPLUS
CN 1H-Purin-8-amine, 2-chloro-N-(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

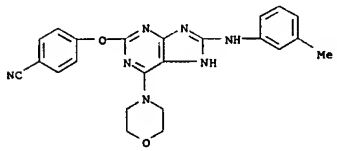


RN 682337-67-3 CAPLUS
CN Phenol, 3-[[8-[(3-methylphenyl)amino]-6-(4-morpholinyl)-1H-purin-2-yl]amino]- (9CI) (CA INDEX NAME)

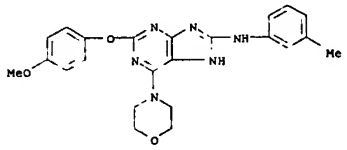
L3 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-68-4 CAPLUS
CN Benzonitrile, 4-[[8-[(3-methylphenyl)amino]-6-(4-morpholinyl)-1H-purin-2-yl]oxy]- (9CI) (CA INDEX NAME)

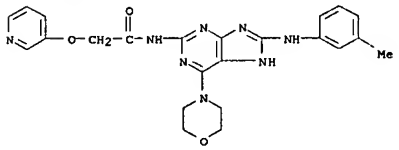


RN 682337-69-5 CAPLUS
CN 1H-Purin-8-amine, 2-(4-methoxyphenoxy)-N-(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

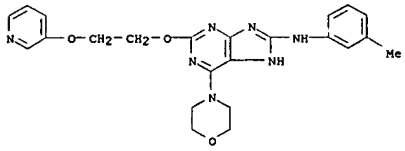


RN 682337-70-8 CAPLUS
CN Acetamide, N-[8-[(3-methylphenyl)amino]-6-(4-morpholinyl)-1H-purin-2-yl]-2-(3-pyridinyloxy)- (9CI) (CA INDEX NAME)

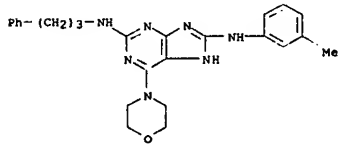
L3 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-71-9 CAPLUS
CN 1H-Purin-8-amine, N-(3-methylphenyl)-6-(4-morpholinyl)-2-[2-(3-pyridinyloxy)ethoxy]- (9CI) (CA INDEX NAME)

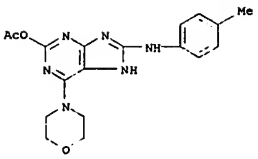


RN 682337-72-0 CAPLUS
CN 1H-Purine-2,8-diamine, N8-(3-methylphenyl)-6-(4-morpholinyl)-N2-(3-phenylpropyl)- (9CI) (CA INDEX NAME)

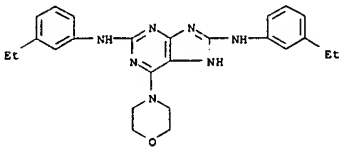


RN 682337-73-1 CAPLUS
CN 1H-Purin-2-ol, 8-[(4-methylphenyl)amino]-6-(4-morpholinyl)-, acetate (ester) (9CI) (CA INDEX NAME)

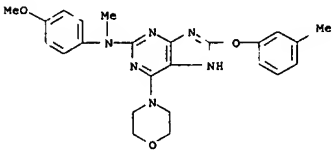
L3 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-74-2 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(3-ethylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

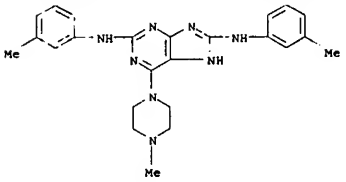


RN 682337-75-3 CAPLUS
CN 1H-Purin-2-amine, N-(4-methoxyphenyl)-N-methyl-8-(3-methylphenoxy)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

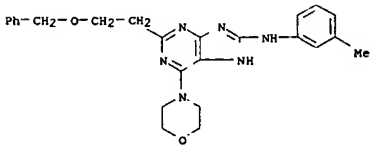


RN 682337-76-4 CAPLUS
CN Methanone, (2,6-di-4-morpholinyl-1H-purin-8-yl)(3-methylphenyl)- (9CI) (CA INDEX NAME)

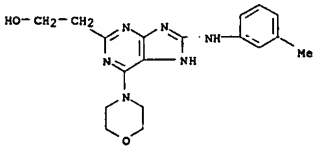
L3 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-81-1 CAPLUS
CN 1H-Purin-8-amine, N-(3-methylphenyl)-6-(4-morpholinyl)-2-[2-(phenylmethoxy)ethyl]- (9CI) (CA INDEX NAME)

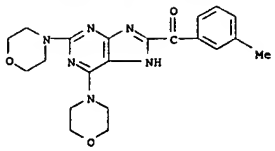


RN 682337-82-2 CAPLUS
CN 1H-Purine-2-ethanol, 8-[(3-methylphenyl)amino]-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

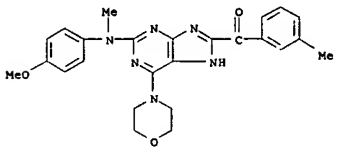


RN 682337-84-4 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(4-chlorophenyl)-6-(4-morpholinyl)-, monohydrochloride (9CI) (CA INDEX NAME)

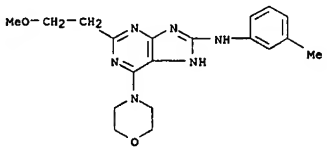
L3 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 682337-77-5 CAPLUS
CN Methanone, [2-[(4-methoxyphenyl)methylamino]-6-(4-morpholinyl)-1H-purin-8-yl](3-methylphenyl)- (9CI) (CA INDEX NAME)

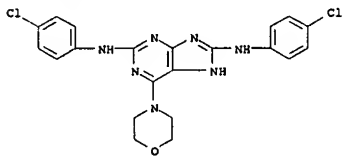


RN 682337-79-7 CAPLUS
CN 1H-Purin-8-amine, 2-(2-methoxyethyl)-N-(3-methylphenyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)



RN 682337-80-0 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(3-methylphenyl)-6-(4-methyl-1-piperazinyl)- (9CI) (CA INDEX NAME)

L3 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

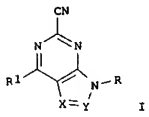


● HCl

L3 ANSWER 8 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:2886 CAPLUS
DOCUMENT NUMBER: 140:77157
TITLE: Preparation of novel purine- or pyrrolo[2,3-d]pyrimidine-2-carbonitriles for treating diseases associated with cysteine protease activity
INVENTOR(S): Bailey, Andrew; Pairaudeau, Garry; Patel, Anil; Thom, Stephen
PATENT ASSIGNEE(S): Astrazeneca AB, Swed.
SOURCE: PCT Int. Appl., 41 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

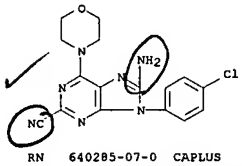
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004000843	A1	20031231	WO 2003-SE1079	20030623
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003243096	A1	20040106	AU 2003-243096	20030623
EP 1532148	A1	20050525	EP 2003-761002	20030623
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2005533804	T2	20051110	JP 2004-515329	20030623
US 2005203107	A1	20050915	US 2004-518815	20041220
PRIORITY APPLN. INFO.:			SE 2002-1980 A	20020624
			WO 2003-SE1079 W	20030623

OTHER SOURCE(S): MARPAT 140:77157
GI



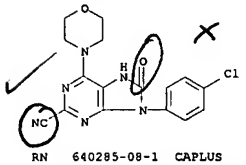
I

L3 ANSWER 8 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
AB The title compds. [I; X = N, NH, CH, CH2; Y = N, CH, CO, CH2, CNR2R3 (wherein R2, R3 = H, alkyl, cycloalkyl); R = (un)substituted (hetero)aryl, H, alkyl, cycloalkyl, etc.; R1 = Z(CH2)pR7 (wherein p = 0-2; Z = O, NR8; R8 = H, alkyl, cycloalkyl; R7 = (un)substituted 5-6 membered saturated ring containing one or more O, S or N atoms, aryl or heteroaryl), NR9R10 (R9, R10 = H, alkyl, etc.; or NR9R10 = (un)substituted 5-6 membered saturated ring optionally containing a further O, S or N atom)] which are reversible inhibitors of cysteine proteases S, K, F, L and B (no data), and therefore useful for treating diseases associated with cysteine protease activity (especially diseases associated with Cathepsin S), were prepared Thus, a 4-step synthesis of 1-[9-(4-chlorophenyl)-2-cyano-9H-purin-6-yl]-L-prolinamide (starting from 4-chloroaniline and 5-amino-4,6-dichloro-2-propylthiopyrimidine), was given. Pharmaceutical composition comprising the compound I is claimed.
IT **640285-06-9P 640285-07-0P 640285-08-1P**
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of purine- or pyrrolo[2,3-d]pyrimidine-2-carbonitriles for treating diseases associated with cysteine protease activity)
RN 640285-06-9 CAPLUS
CN 9H-Purine-2-carbonitrile, 8-amino-9-(4-chlorophenyl)-6-(4-morpholinyl)-(9CI) (CA INDEX NAME)

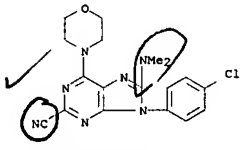


RN 640285-07-0 CAPLUS
CN 7H-Purine-2-carbonitrile, 9-(4-chlorophenyl)-8,9-dihydro-6-(4-morpholinyl)-8-oxo- (9CI) (CA INDEX NAME)

L3 ANSWER 8 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



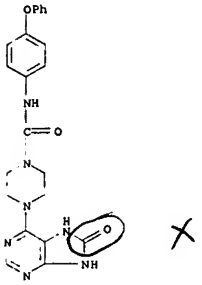
RN 640285-08-1 CAPLUS
CN 9H-Purine-2-carbonitrile, 9-(4-chlorophenyl)-8-(dimethylamino)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)



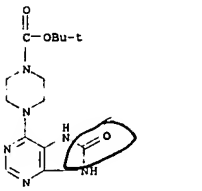
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 9 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:802815 CAPLUS
DOCUMENT NUMBER: 140:22645
TITLE: Potent and Selective Inhibitors of Platelet-Derived Growth Factor Receptor Phosphorylation. 3. Replacement of Quinazoline Moiety and Improvement of Metabolic Polymorphism of 4-[4-(N-Substituted (thio)carbamoyl)-1-piperazinyl]-6,7-dimethoxyquinazoline Derivatives
AUTHOR(S): Matsuno, Kenji; Ushiki, Junko; Seishi, Takashi; Ichimura, Michio; Giese, Neill A.; Yu, Jin-Chen; Takahashi, Shusuke; Oda, Shoji; Nomoto, Yuji
CORPORATE SOURCE: Pharmaceutical Research Institute, Kyowa Hakko Kogyo Co., Ltd., Nagaizumi, Shizuoka, 411-8731, Japan
SOURCE: Journal of Medicinal Chemistry (2003), 46(23), 4910-4925
CODEN: JMCMAR; ISSN: 0022-2623
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 140:22645
AB We have previously reported that a series of 4-[4-(N-substituted (thio)carbamoyl)-1-piperazinyl]-6,7-dimethoxyquinazoline derivs. were potent and selective inhibitors of platelet-derived growth factor receptor (PDGFR) phosphorylation and demonstrated several biol. effects such as suppression of neointima formation following balloon injury in rat carotid artery by oral administration. Here, we investigated structure-activity relationships of the 6,7-dimethoxyquinazolinyl moiety. In regard to 6,7-dimethoxy groups, ethoxy analogs showed potent activity (IC50 of 16b is 0.04 μM; IC50 of 17a is 0.01 μM) and further extension of the alkyl group reduced activity. Interestingly, methoxyethoxy (IC50 of 16j is 0.02 μM; IC50 of 17h is 0.01 μM) and ethoxyethoxy (IC50 of 17j is 0.02 μM) analogs showed the most potent activity, suggesting that the inserted oxygen atom significantly interacts with β-PDGFR. Among tricyclic quinazoline derivs., the 2-oxoimidazo[4,5-e]quinazoline derivative 21a showed potent activity (IC50 = 0.10 μM). Regarding replacements of quinazoline by other heterocyclic rings, pyrazolo[3,4-d]pyrimidine (39a, IC50 = 0.17 μM) and quinoline (IC50 of 40a is 0.18 μM; IC50 of 40b is 0.09 μM) derivs. showed potent activity. Isoquinoline and some pyridopyrimidine derivs. were completely inactive; therefore, 1-aza has an important role. Also 7-aza and 8-aza substitution on the parent quinazoline ring has a detrimental effect on the interaction with β-PDGFR. We also demonstrated that the substituents on the quinazoline ring possess major consequences for metabolic polymorphism. Although there existed extensive metabolizers and poor metabolizers in Sprague-Dawley rats administered 6,7-dimethoxyquinazoline derivs. (1b and 1c), 6-(2-methoxy)ethoxy-7-methoxyquinazoline analog 16k showed no metabolic polymorphism.
IT **245449-92-7P**
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation and structure activity relationships of methoxyquinazoline

L3 ANSWER 9 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
derivs. as inhibitors of PDGFR phosphorylation)
RN 245449-92-7 CAPLUS
CN 1-Piperazinecarboxamide, 4-(7,8-dihydro-8-oxo-1H-purin-6-yl)-N-(4-phenoxyphenyl)- (9CI) (CA INDEX NAME)



IT 245450-03-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and structure activity relationships of methoxyquinazoline
derivs. as inhibitors of PDGFR phosphorylation)
RN 245450-03-7 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-(7,8-dihydro-8-oxo-1H-purin-6-yl)-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



REFERENCE COUNT: 57 THERE ARE 57 CITED REFERENCES AVAILABLE FOR THIS

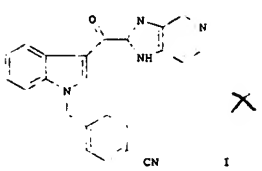
L3 ANSWER 9 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 10 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (CANCER)
ACCESSION NUMBER: 2003:221510 CAPLUS
DOCUMENT NUMBER: 138:238183
TITLE: Preparation of 2-aroyl-imidazole compounds as antitumor agents
INVENTOR(S): Koya, Keizo; Sun, Lijun; Ono, Mitsunori; James, David;
Ying, Wiewen; Chen, Shoujun
PATENT ASSIGNEE(S): SBR Pharmaceuticals Corp., USA
SOURCE: PCT Int. Appl., 87 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

Same Inventors

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003022274	A2	20030320	WO 2002-US27514	20020828
WO 2003022274	A3	20030710		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2460345	AA	20030320	CA 2002-2460345	20020828
EP 1427413	A2	20040616	EP 2002-757458	20020828
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
JP 2005504789	T2	20050217	JP 2003-526403	20020828
US 2003096836	A1	20030522	US 2002-233371	20020829
US 6743919	B2	20040601		
US 2004186129	A1	20040923	US 2004-802292	20040316
PRIORITY APPLN. INFO.:			US 2001-322105P	P 20010913
			WO 2002-US27514	W 20020828
			US 2002-233371	A1 20020829

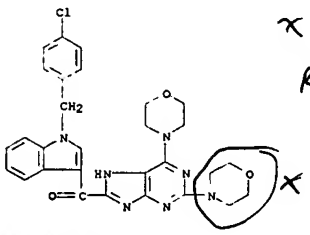
OTHER SOURCE(S): MARPAT 138:238183
GI



I

L3 ANSWER 10 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

AB Disclosed is a compound represented by structural formula RC(=Z1)R1, wherein
R1 is a substituted or unsubstituted 2-imidazolyl group which is optionally fused to a substituted or unsubstituted aryl group; R is heterocycle; Z1 is O, S, oxime, imine, were prepared and tested in vitro as
antitumor agents for human cancer cell lines such as MDA435 (human breast cancer), MIP101 (human colon cancer), HL-60 (human myeloid leukemia), U937
(human leukemia), p388 (murine leukemia), DU-145 (human prostate cancer), MES-SA (human uterine sarcoma). Thus, aroyl-imidazole I was prepared and tested in vitro as antitumor agent. In vitro anti-cancer activity of title compds. against multi drug resistant cell lines MES-SA/DX5 and HL-60/TX1000 is reported. These compds. demonstrated significant anti-cancer activity (IC50: 0.04 - 0.5 μM) against MES-SA/DX5 and HL60/TX1000, while Taxol showed very weak anti-cancer activity (IC50: 5 μM) against the multi-drug resistant cell lines.
IT 501660-26-0P 501660-27-1P
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of aroyl-imidazole compds. as antitumor agents)
RN 501660-26-0 CAPLUS
CN Methanone,
[1-[(4-chlorophenyl)methyl]-1H-indol-3-yl](2,6-di-4-morpholinyl-1H-purin-8-yl)- (9CI) (CA INDEX NAME)

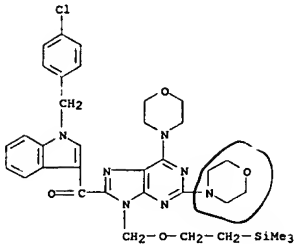


X = C=O ✓
R' = Het ✓
R^c = H ✓
Y ≠ morpholine ✗

RN 501660-27-1 CAPLUS
CN Methanone,
[1-[(4-chlorophenyl)methyl]-1H-indol-3-yl][2,6-di-4-morpholinyl-9-[[2-(trimethylsilyl)ethoxy]methyl]-9H-purin-8-yl]- (9CI) (CA INDEX NAME)

tautomer ↑ Close Art

L3 ANSWER 10 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

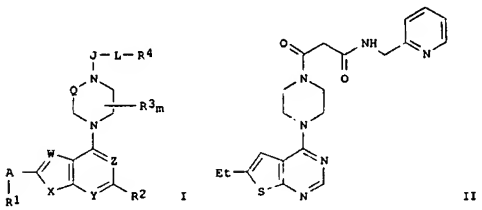


L3 ANSWER 11 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:221465 CAPLUS
DOCUMENT NUMBER: 138:255249
TITLE: Preparation of piperazine and homopiperazine compounds
useful in the treatment of thrombosis and to inhibit ADP-mediated platelet aggregation
INVENTOR(S): Levy, Daniel E.; Smyth, Mark S.; Scarborough, Robert M.
PATENT ASSIGNEE(S): Millennium Pharmaceuticals, Inc., USA
SOURCE: PCT Int. Appl., 260 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003022214	A2	20030320	WO 2002-US28618	20020906
WO 2003022214	A3	20040325		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2003153556	A1	20030814	US 2002-237153	20020906
PRIORITY APPLN. INFO.:			US 2001-317192P	P 20010906

OTHER SOURCE(S): MARPAT 138:255249
GI

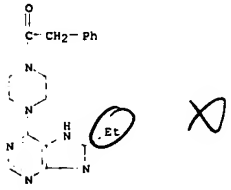


L3 ANSWER 11 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

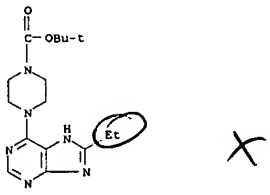
AB Piperazine and homopiperazine compds. I, wherein Q is (CH2)n; n is 1, 2; m is 0-4; W is N, CR5; X is S, O, NR6; Y is N, CR7; Z is N, CR8; J is CO, CS, CNR9, SO, SO2; A is O, S, NR10, CO, CH(OH); L is a direct link or a divalent linker; R1 is H, halo, CN, NO2, N3, alkyl, cycloalkyl, alkene, alkyne; R2 is H, halo, CN, NO2, N3, alkyl, cycloalkyl, alkene, alkyne, acyl; R3 is alkyl, cycloalkyl, acyl; R4 is H, F, CF3, CN, N3, NO2, alkyl, amino, alkylamino, cycloalkyl, heterocycloalkyl, heteroalkyl, fused bicycloalkyl, fused bicycloalkaryl, fused bicycloaryl; R5-R8 are independently H, alkyl, cycloalkyl; R9 is H, CN, NO2, alkyl; R10 is H, alkyl, acyl; are provided having a piperazine or homopiperazine ring which are useful in the treatment of thrombosis. Thus piperazine II was prepared and tested in vitro to inhibit ADP-mediated platelet aggregation (activity ranges are: > 20 μmol; 10-20 μmol; and < 10 μmol).

IT 502644-24-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of piperazine and homopiperazine compds. useful in treatment of thrombosis and to inhibit ADP-mediated platelet aggregation)

RN 502644-24-8 CAPLUS
CN Piperazine, 1-(8-ethyl-1H-purin-6-yl)-4-(phenylacetyl)- (9CI) (CA INDEX NAME)



L3 ANSWER 11 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



IT 502644-23-7P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of piperazine and homopiperazine compds. useful in treatment of thrombosis and to inhibit ADP-mediated platelet aggregation)

RN 502644-23-7 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-(8-ethyl-1H-purin-6-yl)-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

L3 ANSWER 12 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2000:513698 CAPLUS
DOCUMENT NUMBER: 133:129894
TITLE: Substituted nitrogen heterocyclic derivatives and pharmaceutical use thereof
INVENTOR(S): Hanus, Jan; Krystof, Vladimir; Hajduch, Marian; Vesely, Jaroslav; Strnad, Miroslav
PATENT ASSIGNEE(S): Ustav Experimentalni Botaniky Av Cr, Czech Rep.; Lachema, A. S.
SOURCE: PCT Int. Appl., 89 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

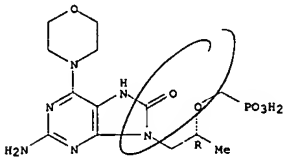
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000043394	A1	20000727	WO 2000-CZ2	20000125
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 2000022761	A5	20000807	AU 2000-22761	20000125
EP 1147108	A1	20011024	EP 2000-901478	20000125
EP 1147108	B1	20030813		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
AT 247115	E	20030815	AT 2000-901478	20000125
US 6552192	B1	20030422	US 2001-889176	20010712
US 2003191086	A1	20031009	US 2003-358674	20030205

PRIORITY APPLN. INFO.: CZ 1999-273 A 19990126
WO 2000-CZ2 W 20000125
US 2001-889176 A3 20010712

OTHER SOURCE(S): MARPAT 133:129894
AB Substituted nitrogen heterocyclic derivs. having cytostatic, anticancer, antimitotic, antineurogenerative, immunosuppressive and antimicrobial effects are provided. Also provided are methods for preparation of these derivs., the use of the compds. as drugs, pharmaceutical compns. and combined pharmaceutical applications,, and the use of these derivs. for drug production Compds. of the invention include e.g. 9-isopropylpurine derivs.
IT 286406-59-5D, 2-N-alkyl derivs. 286406-62-0D, 2-N-alkyl derivs. 286406-63-1D, 2-N-alkyl derivs. 286406-64-2D, 2-N-alkyl derivs. 286406-65-3D, 2-N-alkyl derivs. 286406-66-4D, 2-N-alkyl derivs. 286406-67-5D, 2-N-alkyl derivs. 286406-68-6D, 2-N-alkyl derivs.
RL: BAC (Biological activity or effector, except adverse); BSU (Biological

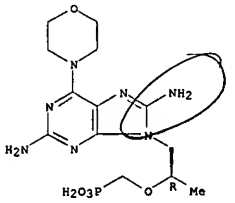
L3 ANSWER 12 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
study, unclassified); BUU (Biological use, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(substituted nitrogen heterocyclic derivs., prepn., pharmaceutical compns., and therapeutic use)
RN 286406-59-5 CAPLUS
CN Phosphonic acid, [[(1R)-2-[2-amino-7,8-dihydro-6-(4-morpholinyl)-8-oxo-9H-purin-9-yl]-1-methylethoxy]methyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 286406-62-0 CAPLUS
CN Phosphonic acid, [[(1R)-2-[2,8-diamino-6-(4-morpholinyl)-9H-purin-9-yl]-1-methylethoxy]methyl]- (9CI) (CA INDEX NAME)

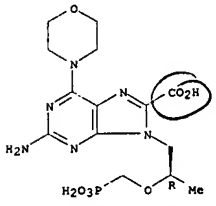
Absolute stereochemistry.



RN 286406-63-1 CAPLUS
CN 9H-Purine-8-carboxylic acid, 2-amino-6-(4-morpholinyl)-9-[(2R)-2-(phosphonomethoxy)propyl]- (9CI) (CA INDEX NAME)

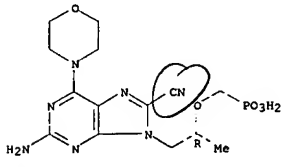
Absolute stereochemistry.

L3 ANSWER 12 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



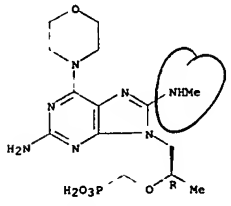
RN 286406-64-2 CAPLUS
CN Phosphonic acid, [[(1R)-2-[2-amino-8-cyano-6-(4-morpholinyl)-9H-purin-9-yl]-1-methylethoxy]methyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 286406-65-3 CAPLUS
CN Phosphonic acid, [[(1R)-2-[2-amino-8-(methylamino)-6-(4-morpholinyl)-9H-purin-9-yl]-1-methylethoxy]methyl]- (9CI) (CA INDEX NAME)

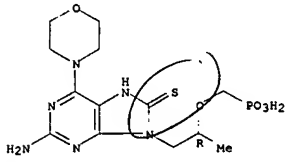
Absolute stereochemistry.



RN 286406-66-4 CAPLUS

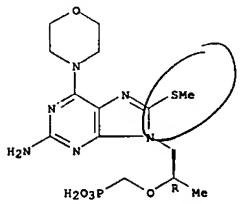
L3 ANSWER 12 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
CN Phosphonic acid, [[(1R)-2-[2-amino-7,8-dihydro-6-(4-morpholinyl)-8-thioxo-9H-purin-9-yl]-1-methylethoxy]methyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



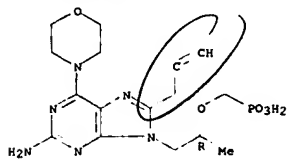
RN 286406-67-5 CAPLUS
CN Phosphonic acid, [[(1R)-2-[2-amino-8-(methylthio)-6-(4-morpholinyl)-9H-purin-9-yl]-1-methylethoxy]methyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 286406-68-6 CAPLUS
CN Phosphonic acid, [[(1R)-2-[2-amino-6-(4-morpholinyl)-8-(2-propynyl)-9H-purin-9-yl]-1-methylethoxy]methyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



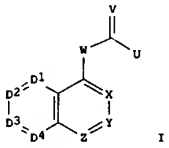
L3 ANSWER 12 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

L3 ANSWER 13 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1999:659367 CAPLUS
DOCUMENT NUMBER: 131:271888
TITLE: Preparation of nitrogenous heterocyclic compounds for inhibiting phosphorylation of PDGF receptors
INVENTOR(S): Matsuno, Kenji; Nomoto, Yuji; Ichimura, Michio; Ide, Shin-ichi; Oda, Shoji
PATENT ASSIGNEE(S): Kyowa Hakko Kogyo Co., Ltd., Japan
SOURCE: PCT Int. Appl., 96 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9951582	A1	19991014	WO 1999-JP1665	19990331
W: AU, BG, BR, CA, CN, CZ, HU, ID, IL, IN, JP, KR, MX, NO, NZ, PL, RO, SG, SI, SK, UA, US, VN, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
CA 2326324	AA	19991014	CA 1999-2326324	19990331
AU 9930539	A1	19991025	AU 1999-30539	19990331
EP 1067123	A1	20010110	EP 1999-912061	19990331
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO				
US 6423716	B1	20020723	US 2000-647490	20000929
PRIORITY APPLN. INFO.:			JP 1998-87514 A	19980331
			WO 1999-JP1665 W	19990331

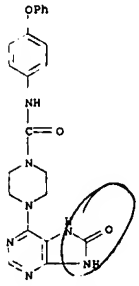
OTHER SOURCE(S): MARPAT 131:271888
GI



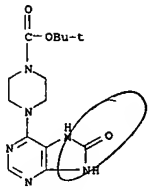
I

AB Nitrogenous heterocyclic compds. [I; W = 1,4-piperazinediyl, etc.; U = NR1R2 (wherein R1 = H, (un)substituted alkyl, etc.; R2 = H, etc.), OR4 or SR5 (wherein R4, R5 = (un)substituted alkyl, alicyclic alkyl, heterocyclic, etc.); V = O, S, NR6, or CR7R8 (wherein R6 = R1, cyano, OH, NO2, etc.; R7, R8 = H, cyano, NO2, etc.); at least one of X, Y, and Z = N and the remainder are the same or different and each represents N or CRA (wherein RA = R1, halo, cyano, NO2, etc.); and D1, D2, D3, and D4 each independently = N, O, S, CRB (wherein RB = RA), etc. or any adjacent two of D1-D4 in combination = N, O, S, etc.] or pharmacol. acceptable salts thereof, effective in inhibiting phosphorylation of PDGF receptors and in treating cell proliferation diseases such as arteriosclerosis, vascular reocclusion, cancers, glomerulosclerosis, etc., are prepd. CF3CO2H was added to a soln. of tert-Bu 4-[(4-phenoxyphenyl)carbamoyl]-1-piperazinecarboxylate in CH2Cl2 with stirring under cooling, the conc. was dissolved in DMF contg. Et3N and the soln. was treated with 6-chloropurine under Ar at room temp. to give 71% N-(4-phenoxyphenyl)-4-(6-purinyl)-1-piperazinecarboxamide, which showed IC50 of 0.29 μM against phosphorylation of PDGF receptor. Four addnl. I showed 66-95% inhibition. Tablet, powder and syrup formulations were given.

IT 245449-92-7P
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of nitrogenous heterocyclic compds. for inhibiting phosphorylation of PDGF receptors)
RN 245449-92-7 CAPLUS
CN 1-Piperazinecarboxamide, 4-(7,8-dihydro-8-oxo-1H-purin-6-yl)-N-(4-phenoxyphenyl)- (9CI) (CA INDEX NAME)



IT 245450-03-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of nitrogenous heterocyclic compds. for inhibiting phosphorylation of PDGF receptors)
RN 245450-03-7 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-(7,8-dihydro-8-oxo-1H-purin-6-yl)-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



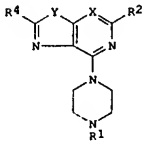
L3 ANSWER 13 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

L3 ANSWER 14 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1992:214255 CAPLUS
DOCUMENT NUMBER: 116:214255
TITLE: Preparation of piperazinyl derivatives of purines and isosteres as hypoglycemic agents
INVENTOR(S): Johnston, David B. R.; MacCoss, Malcolm; Marburg, Stephen; Meurer, Laura C.; Tolman, Richard L.
PATENT ASSIGNEE(S): Merck and Co., Inc., USA
SOURCE: U.S., 36 pp. Cont.-in-part of U.S. Ser. No. 217,893, abandoned.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5057517	A	19911015	US 1989-393200	19890814
PRIORITY APPLN. INFO.:			US 1987-75362 B2	19870720
			US 1988-217893 B2	19880714

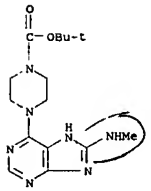
OTHER SOURCE(S): MARPAT 116:214255
GI



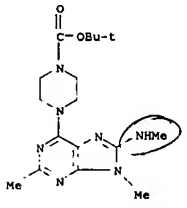
I

AB Title compds. I [X = (R3)mN, R3C, N; Y = (R3)nN, O, S; R3 = H, (substituted)alkyl, cycloalkyl, alkenyl, alkoxyalkyl, alkynyl, alkylthio, alkylsulfinyl, alkylsulfonyl, (di)alkylamino, etc.; m, n = 0, 1; R1 = R3; R2, R4 = H, alkyl, cycloalkyl, alkoxy, alkylthio alkylsulfinyl, alkylsulfonyl, (substituted) Ph, etc.] and salts thereof, useful as hypoglycemic agents (no data), are prepared A mixture of 6-chloropurine and N-(tert-butoxycarbonyl)piperazine (BOC-piperazine) in DMF was stirred overnight at 100° under N to give 55% I (R1 = BOC, R2 = R4 = H, X = N, Y = NH), which underwent N-methylation by MeI and Na2CO3 in DMSO (56%) and deprotection with CF3CO2H (73%) to give I (R1 = R4 = H, X = N, Y = NMe).
IT 121370-63-6P 121370-66-9P 121370-74-9P
121370-78-3P 121370-79-4P 121370-85-2P
121370-88-5P 121370-92-1P 121370-95-4P
121371-08-2P 121392-16-3P

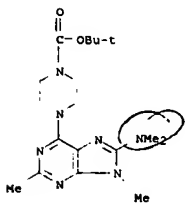
L3 ANSWER 14 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



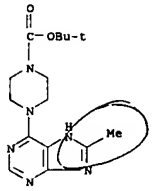
RN 121370-78-3 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-[2,9-dimethyl-8-(methylamino)-9H-purin-6-yl]-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



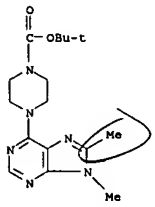
RN 121370-79-4 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-[8-(dimethylamino)-2,9-dimethyl-9H-purin-6-yl]-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



L3 ANSWER 14 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction of, in prepn. of hypoglycemic agents)
RN 121370-63-6 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-(8-methyl-1H-purin-6-yl)-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

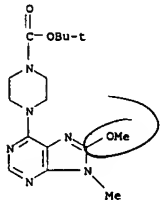


RN 121370-66-9 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-(8,9-dimethyl-9H-purin-6-yl)-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

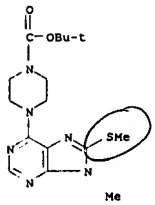


RN 121370-74-9 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-[8-(methylamino)-1H-purin-6-yl]-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

L3 ANSWER 14 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
RN 121370-85-2 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-(8-methoxy-9-methyl-9H-purin-6-yl)-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

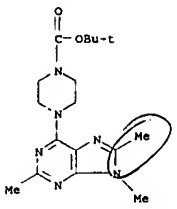


RN 121370-88-5 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-[9-methyl-8-(methylthio)-9H-purin-6-yl]-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

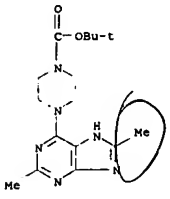


RN 121370-92-1 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-(2,8,9-trimethyl-9H-purin-6-yl)-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

L3 ANSWER 14 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

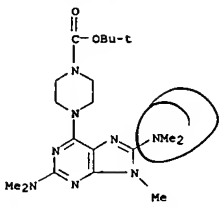


RN 121370-95-4 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-(2,8-dimethyl-1H-purin-6-yl)-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

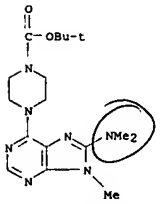


RN 121371-08-2 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-[2,8-bis(dimethylamino)-9-methyl-9H-purin-6-yl]-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

L3 ANSWER 14 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



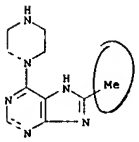
RN 121392-16-3 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-[8-(dimethylamino)-9-methyl-9H-purin-6-yl]-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



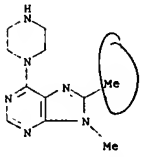
IT 121370-64-7P 121370-67-0P 121370-80-7P
121370-83-0P 121370-86-3P 121370-90-9P
121370-93-2P 121370-96-5P 139653-69-3P
139653-89-7P 139653-90-0P 139653-91-1P
139653-92-2P 139664-65-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, as hypoglycemic agent)

RN 121370-64-7 CAPLUS
CN 1H-Purine, 8-methyl-6-(1-piperazinyl)- (9CI) (CA INDEX NAME)

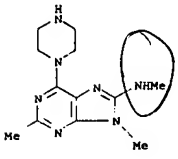
L3 ANSWER 14 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 121370-67-0 CAPLUS
CN 9H-Purine, 8,9-dimethyl-6-(1-piperazinyl)- (9CI) (CA INDEX NAME)



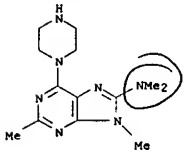
RN 121370-80-7 CAPLUS
CN 9H-Purin-8-amine, N,2,9-trimethyl-6-(1-piperazinyl)-, dihydrochloride (9CI) (CA INDEX NAME)



●2 HCl

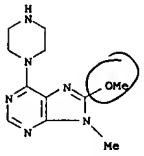
RN 121370-83-0 CAPLUS
CN 9H-Purin-8-amine, N,N,2,9-tetramethyl-6-(1-piperazinyl)-, dihydrochloride (9CI) (CA INDEX NAME)

L3 ANSWER 14 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

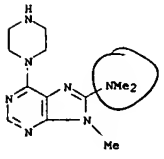


●2 HCl

RN 121370-86-3 CAPLUS
CN 9H-Purine, 8-methoxy-9-methyl-6-(1-piperazinyl)- (9CI) (CA INDEX NAME)



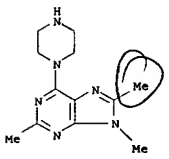
RN 121370-90-9 CAPLUS
CN 9H-Purin-8-amine, N,N,9-trimethyl-6-(1-piperazinyl)-, dihydrochloride (9CI) (CA INDEX NAME)



●2 HCl

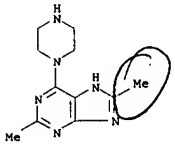
RN 121370-93-2 CAPLUS
CN 9H-Purine, 2,8,9-trimethyl-6-(1-piperazinyl)-, dihydrochloride (9CI) (CA

L3 ANSWER 14 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
INDEX NAME)



●2 HCl

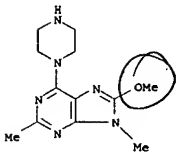
RN 121370-96-5 CAPLUS
CN 1H-Purine, 2,8-dimethyl-6-(1-piperazinyl)-, dihydrochloride (9CI) (CA INDEX NAME)



●2 HCl

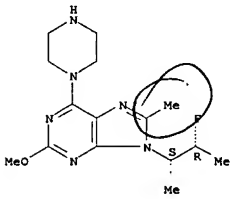
RN 139653-69-3 CAPLUS
CN 9H-Purine, 8-methoxy-2,9-dimethyl-6-(1-piperazinyl)- (9CI) (CA INDEX NAME)

L3 ANSWER 14 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 139653-89-7 CAPLUS
CN 9H-Purine, 9-(2-fluoro-1-methylpropyl)-2-methoxy-8-methyl-6-(1-piperazinyl)-, [R-(R*,S*)]- (9CI) (CA INDEX NAME)

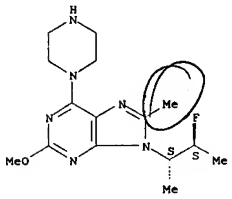
Absolute stereochemistry.



RN 139653-90-0 CAPLUS
CN 9H-Purine, 9-(2-fluoro-1-methylpropyl)-2-methoxy-8-methyl-6-(1-piperazinyl)-, [S-(R*,R*)]- (9CI) (CA INDEX NAME)

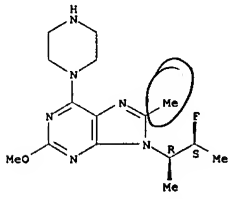
Absolute stereochemistry.

L3 ANSWER 14 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 139653-91-1 CAPLUS
CN 9H-Purine, 9-(2-fluoro-1-methylpropyl)-2-methoxy-8-methyl-6-(1-piperazinyl)-, [S-(R*,S*)]- (9CI) (CA INDEX NAME)

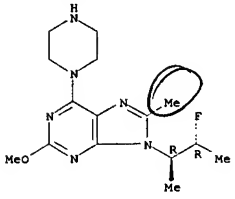
Absolute stereochemistry.



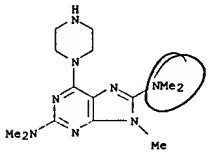
RN 139653-92-2 CAPLUS
CN 9H-Purine, 9-(2-fluoro-1-methylpropyl)-2-methoxy-8-methyl-6-(1-piperazinyl)-, [R-(R*,R*)]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

L3 ANSWER 14 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 139664-65-6 CAPLUS
CN 9H-Purine-2,6-diamine, N,N,N',N',9-pentamethyl-6-(1-piperazinyl)-, dihydrochloride (9CI) (CA INDEX NAME)



●2 HCl

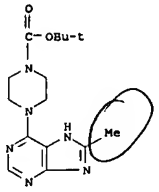
L3 ANSWER 15 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1989:457418 CAPLUS
DOCUMENT NUMBER: 111:57418
TITLE: Piperazinyl derivatives of purines and isosteres thereof as hypoglycemic agents
INVENTOR(S): Johnston, David B. R.; Tolman, Richard L.; Mac Coss, Malcolm; Marburg, Stephen; Meurer, Laura C.
PATENT ASSIGNEE(S): Merck and Co., Inc., USA
SOURCE: Eur. Pat. Appl., 72 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 300726	A1	19890125	EP 1988-306584	19880719
EP 300726	B1	19930922		
R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE				
IL 87149	A1	19940530	IL 1988-87149	19880718
FI 8803423	A	19890121	FI 1988-3423	19880719
NO 8803204	A	19890123	NO 1988-3204	19880719
NO 167203	B	19910708		
NO 167203	C	19911016		
AU 8819230	A1	19890127	AU 1988-19230	19880719
AU 601862	B2	19900920		
HU 47575	A2	19890328	HU 1988-3774	19880719
HU 199144	B	19900129		
DK 8804031	A	19890330	DK 1988-4031	19880719
AT 94877	E	19931015	AT 1988-306584	19880719
ES 2058291	T3	19941101	ES 1988-306584	19880719
CA 1341043	A1	20000704	CA 1988-572450	19880719
ZA 8805242	A	19890329	ZA 1988-5242	19880720
JP 01104074	A2	19890421	JP 1988-179325	19880720
JP 2562181	B2	19961211		

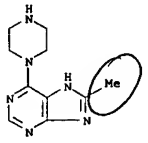
PRIORITY APPLN. INFO.: US 1987-75362 A 19870720
EP 1988-306584 A 19880719

OTHER SOURCE(S): MARPAT 111:57418
GI For diagram(s), see printed CA Issue.
AB The title compds. [I; X = N(R3)m, NR3, N; Y = N(R3)n, NR3, S, O; R1, R3 = H, alkyl, alkenyl, cycloalkyl, etc.; R2, R4 = H, alkyl, cycloalkyl, alkoxy, alkylthio, etc.; m = 0 when n = 1; or m = 1 when n = 0], useful as hypoglycemics (no data), are prepared A mixture of 6-chloropurine and N-(tert-butoxycarbonyl)piperazine (BOC-piperazine) in DMF was heated at 100° under N to give 55% I (R1 = BOC, R2 = R4 = H, X = N, Y = NH).
IT 121370-63-6P 121370-64-7P 121370-66-9P
121370-67-0P 121370-74-9P 121370-78-3P
121370-79-4P 121370-80-7P 121370-82-9P
121370-83-0P 121370-85-2P 121370-86-3P
121370-88-5P 121370-90-9P 121370-92-1P
121370-93-2P 121370-95-4P 121370-96-5P
121371-08-2P 121392-16-3P

L3 ANSWER 15 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction of, in prepn. of hypoglycemic agents)
RN 121370-63-6 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-(8-methyl-1H-purin-6-yl)-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

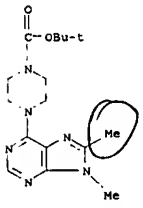


RN 121370-64-7 CAPLUS
CN 1H-Purine, 8-methyl-6-(1-piperazinyl)- (9CI) (CA INDEX NAME)

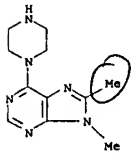


RN 121370-66-9 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-(8,9-dimethyl-9H-purin-6-yl)-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

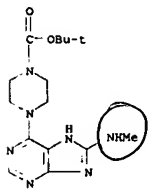
L3 ANSWER 15 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 121370-67-0 CAPLUS
CN 9H-Purine, 8,9-dimethyl-6-(1-piperazinyl)- (9CI) (CA INDEX NAME)

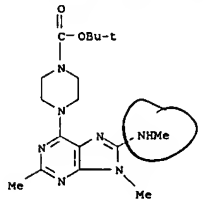


RN 121370-74-9 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-[8-(methylamino)-1H-purin-6-yl]-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

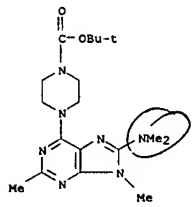


RN 121370-78-3 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-(2,9-dimethyl-8-(methylamino)-9H-purin-6-yl)-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

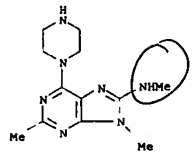
L3 ANSWER 15 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 121370-79-4 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-[8-(dimethylamino)-2,9-dimethyl-9H-purin-6-yl]-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



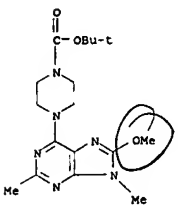
RN 121370-80-7 CAPLUS
CN 9H-Purin-8-amine, N,2,9-trimethyl-6-(1-piperazinyl)-, dihydrochloride (9CI) (CA INDEX NAME)



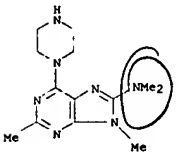
●2 HCl

L3 ANSWER 15 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

RN 121370-82-9 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-(8-methoxy-2,9-dimethyl-9H-purin-6-yl)-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



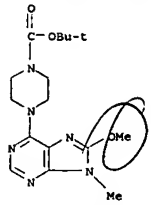
RN 121370-83-0 CAPLUS
CN 9H-Purin-8-amine, N,N,2,9-tetramethyl-6-(1-piperazinyl)-, dihydrochloride (9CI) (CA INDEX NAME)



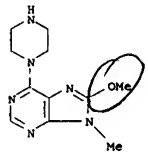
●2 HCl

RN 121370-85-2 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-(8-methoxy-9-methyl-9H-purin-6-yl)-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

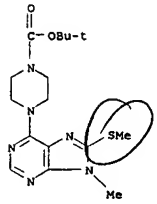
L3 ANSWER 15 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



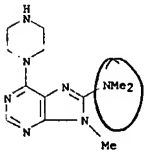
RN 121370-86-3 CAPLUS
CN 9H-Purine, 8-methoxy-9-methyl-6-(1-piperazinyl)- (9CI) (CA INDEX NAME)



RN 121370-88-5 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-[9-methyl-8-(methylthio)-9H-purin-6-yl]-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

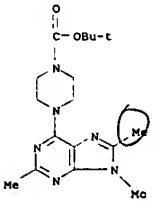


L3 ANSWER 15 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
RN 121370-90-9 CAPLUS
CN 9H-Purin-8-amine, N,N,9-trimethyl-6-(1-piperazinyl)-, dihydrochloride (9CI) (CA INDEX NAME)



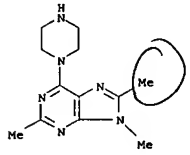
●2 HCl

RN 121370-92-1 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-(2,8,9-trimethyl-9H-purin-6-yl)-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



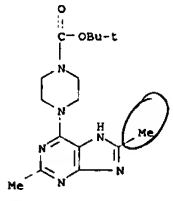
RN 121370-93-2 CAPLUS
CN 9H-Purine, 2,8,9-trimethyl-6-(1-piperazinyl)-, dihydrochloride (9CI) (CA INDEX NAME)

L3 ANSWER 15 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

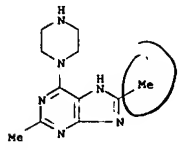


●2 HCl

RN 121370-95-4 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-(2,8-dimethyl-1H-purin-6-yl)-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



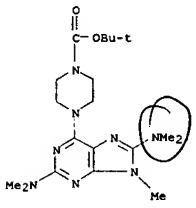
RN 121370-96-5 CAPLUS
CN 1H-Purine, 2,8-dimethyl-6-(1-piperazinyl)-, dihydrochloride (9CI) (CA INDEX NAME)



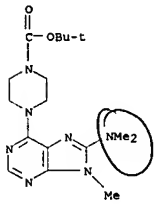
●2 HCl

L3 ANSWER 15 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

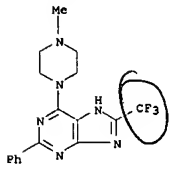
RN 121371-08-2 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-[2,8-bis(dimethylamino)-9-methyl-9H-purin-6-yl]-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



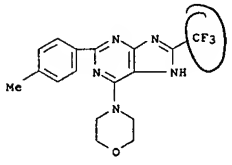
RN 121392-16-3 CAPLUS
CN 1-Piperazinecarboxylic acid, 4-[8-(dimethylamino)-9-methyl-9H-purin-6-yl]-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



L3 ANSWER 16 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



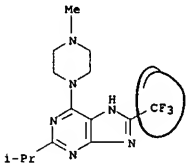
RN 108087-66-7 CAPLUS
CN 1H-Purine, 2-(4-methylphenyl)-6-(4-morpholinyl)-8-(trifluoromethyl)- (9CI) (CA INDEX NAME)



L3 ANSWER 16 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1988:422764 CAPLUS
Correction of: 1987:196130
DOCUMENT NUMBER: 109:22764
Correction of: 106:196130
TITLE: Preparation of (trifluoromethyl)purine derivatives as drugs
INVENTOR(S): Oe, Takanori; Sueoka, Hiroyuki; Terasawa, Michio
PATENT ASSIGNEE(S): Yoshitomi Pharmaceutical Industries, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 62010085	A2	19870119	JP 1985-148838	19850705
JP 05029035	B4	19930428		
PRIORITY APPLN. INFO.:			JP 1985-148838	19850705

OTHER SOURCE(S): CASREACT 109:22764
AB The title compds. (I; R = H, CF3, alkyl, etc.; R1 = H, alkyl; R2 = alkyl; R1R2N = heterocyclyl; R3 = H, alkyl; R4 = CF3, pyridyl, Ph), useful as pharmaceuticals, are prepared Stirring 4 g pyrimidine derivative II with 1.9 g PhCO2H in polyphosphoric acid at 150° gave 2.9 g I (R = CF3, R1R2N = piperidino, R3 = H, R4 = Ph).
IT **108087-58-7P 108087-59-8P 108087-66-7P**
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of, as drug)
RN 108087-58-7 CAPLUS
CN 1H-Purine, 2-(1-methylethyl)-6-(4-methyl-1-piperazinyl)-8-(trifluoromethyl)- (9CI) (CA INDEX NAME)

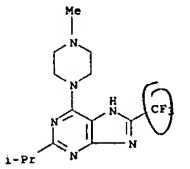


RN 108087-59-8 CAPLUS
CN 1H-Purine, 6-(4-methyl-1-piperazinyl)-2-phenyl-8-(trifluoromethyl)- (9CI) (CA INDEX NAME)

L3 ANSWER 17 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1987:196130 CAPLUS
DOCUMENT NUMBER: 106:196130
TITLE: (Trifluoromethyl)purine derivatives as antitumor agents
INVENTOR(S): Obe, Takanori; Sueoka, Hiroyuki; Terasawa, Michio
PATENT ASSIGNEE(S): Yoshitomi Pharmaceutical Industries, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
PATENT INFORMATION:

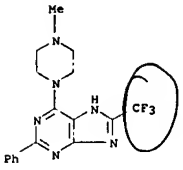
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 62010085 A2		19870119	JP 1985-148838	19850705

GI For diagram(s), see printed CA Issue.
AB The title compds. I (R = H, CF3, alkyl, etc.; R1 = H, alkyl; R2 = alkyl; R1R2N = heterocyclyl; R3 = H, alkyl; R4 = CF3, pyridyl, Ph), effective antitumor agents at 0.1-10 mg/kg in adults, are prepared Thus, stirring 4 g pyrimidine derivative II and 1.9 g PhCO2H in 50 g polyphosphoric acid at 150° gave 2.9 g I (R = CF3, R1R2N = piperidino, R3 = H, R4 = Ph).
IT **108087-58-7P 108087-59-8P 108087-66-7P**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(preparation of, as antitumor agent)
RN 108087-58-7 CAPLUS
CN 1H-Purine, 2-(1-methylethyl)-6-(4-methyl-1-piperazinyl)-8-(trifluoromethyl)- (9CI) (CA INDEX NAME)

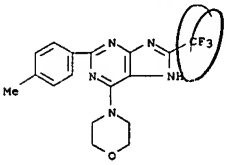


RN 108087-59-8 CAPLUS
CN 1H-Purine, 6-(4-methyl-1-piperazinyl)-2-phenyl-8-(trifluoromethyl)- (9CI) (CA INDEX NAME)

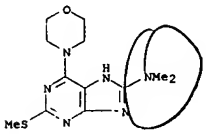
L3 ANSWER 17 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 108087-66-7 CAPLUS
CN 1H-Purine, 2-(4-methylphenyl)-6-(4-morpholinyl)-8-(trifluoromethyl)- (9CI)
(CA INDEX NAME)

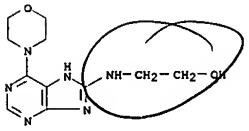


L3 ANSWER 18 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1973:466312 CAPLUS
DOCUMENT NUMBER: 79:66312
TITLE: New synthesis of substituted 8-aminopurine derivatives
AUTHOR(S): Yoneda, Fumio; Higuchi, Masatsugu; Matsumura, Takafumi; Senga, Keitaro
CORPORATE SOURCE: Fac. Pharm. Sci., Kumamoto Univ., Kumamoto, Japan
SOURCE: Bulletin of the Chemical Society of Japan (1973), 46(6), 1836-9
CODEN: BCSJA8; ISSN: 0009-2673
DOCUMENT TYPE: Journal
LANGUAGE: English
GI For diagram(s), see printed CA Issue.
AB The treatment of 6-amino-5-nitrosopyrimidinediones with Vilsmeier-type reagents (substituted formamides and phosphorus oxychloride) afforded substituted 8-aminopurines (I, R = NMe2, NEt2, NHMe, NMePh). However, the treatment of 6-amino-4-hydroxy-2-methyl-5-nitrosopyrimidine with the same reagents gave 2-(chloromethyl)-8-(dimethylamino)-6-hydroxypurine.
IT 43005-45-4P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 43005-45-4 CAPLUS
CN 1H-Purin-8-amine, N,N-dimethyl-2-(methylthio)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

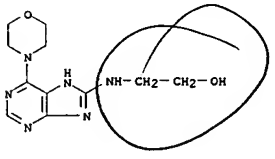


L3 ANSWER 19 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1970:31756 CAPLUS
DOCUMENT NUMBER: 72:31756
TITLE: Synthetic analogs of kinetin. I
AUTHOR(S): Roitshtein, L. M.; Muravich-Aleksandr, Kh. L.; El'tsov, A. V.
CORPORATE SOURCE: Leningrad. Khim. Farm. Inst., Leningrad, USSR
SOURCE: Zhurnal Obshchei Khimii (1969), 39(9), 2125-9
CODEN: ZOKHA4; ISSN: 0044-460X
DOCUMENT TYPE: Journal
LANGUAGE: Russian
GI For diagram(s), see printed CA Issue.
AB Refluxing 2.5 g 4-amino-5-nitro-6-chloropyrimidine in EtOH with 3.1 ml piperidine (exothermic reaction during mixing) 40 min gave 92% 4-amino-5-nitro-6-piperidinopyrimidine, m. 140-2°; similarly was prepared 4-amino-5-nitro-6-morpholino analog, m. 178-81°. The former was hydrogenated over Raney Ni at normal temperature to 88% 4,5-diamino-6-
piperidinopyrimidine, m. 161-3°; similarly was prepared the 6-morpholino analog, m. 196-9°. The former kept 25 min. at 200° with HCONH2 gave 95.5% 6-piperidinopurine, m. 268-70°; similarly was prepared 91% 6-morpholinopurine, m. 300-1°. Treating appropriate adenines with 20 parts Br2 10 hr on a steam bath gave after removal of excess Br and treatment of the residue with saturated NaHSO3 solution
at 70-80° the following 8-bromopurines (I) (R and R1 shown): piperidino, H, m. 211-13°; morpholino, H, m. 232-3°; NMe2, H, m. 227-8°; Et2N, H, m. 182-3°; NH2, Me, m. very high; NH2, H, m.p. unstated. These heated with aminoethanol or aminopropanol 15
hr at 170-80° gave the following II (R, R1 and R2 shown): piperidino, H, NHCH2CH2OH, m. 229-30° (HCl salt m. 197-200°); piperidino, H, NHCH2CH2CH2OH, m. 215-16° (HCl salt m. 139-40°); morpholino, H, NHCH2CH2OH, m. 254-5° (HCl salt m. 207-8°); morpholino, H, NHCH2CH2CH2OH, not described; NMe2, H, NHCH2CH2OH, m. 216-17° (HCl salt m. 227-9°); NMe2, H, NHCH2CH2CH2OH, m. 194-5° (HCl salt m. 208-10°); NEt2, H, NHCH2CH2OH, m. 168-70° (HCl salt m. 194-6°); NEt2, H, NHCH2CH2CH2OH, m. 172-3° (HCl salt m. 150-3°); NH2, Me, NHCH2CH2OH, m. 294° (HCl salt m. 235.6°); and NH2, H, NHCH2CH2CH2OH, m. 237-40° (HCl salt m. 206-7°).
2-Mercaptoadenine chlorinated at 0° in MeOH-concd.HCl saturated with HCl gave 58% 2-chloroadenine, m. >300°. This heated with ethanolamine at 170-80° gave 2-(2-hydroxyethylamino)-adenine, m. 215-17°.
IT 24957-99-1P 24958-00-7P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 24957-99-1 CAPLUS
CN Ethanol, 2-[(6-morpholinopurin-8-yl)amino]- (8CI) (CA INDEX NAME)

L3 ANSWER 19 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

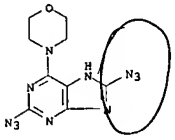


RN 24958-00-7 CAPLUS
CN Ethanol, 2-[(6-morpholinopurin-8-yl)amino]-, dihydrochloride (8CI) (CA INDEX NAME)



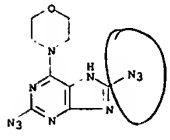
●2 HCl

L3 ANSWER 20 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1965:498336 CAPLUS
DOCUMENT NUMBER: 63:98336
ORIGINAL REFERENCE NO.: 63:18084b-f
TITLE: Azides of purine and homopurine
AUTHOR(S): Smirnova, N. B.; Postovskii, I. Ya.
CORPORATE SOURCE: S. M. Kirov Ural Polytech. Inst., Sverdlovsk
SOURCE: Biol. Aktivn. Soedin., Akad. Nauk SSSR (1965) 102-8
DOCUMENT TYPE: Journal
LANGUAGE: Russian
GI For diagram(s), see printed CA Issue.
AB cf. CA 62, 9130d. I(6 g.) and 6 g. NaN3 in 50 cc. EtOH and 20 cc. H2O was refluxed 2 hrs. to give II (total yield 86%). II (2 g.) was heated 15 min. on a water bath in 20 cc. 2N NaOH with stirring to give quant. II Na salt. NaN3 (1 g.) in 5 cc. H2O was added to 1.5 g. III in 10 cc. EtOH and the mixture refluxed 5 min. to give 75% IV. Similarly, 77% V was obtained (30 min. refluxed). NaN3 (0.47 g.) was added portionwise with stirring to 1 g. VI in 50 cc. Me2CO, the mixture stirred 30 min., salts filtered off and the filtrate concentrated to give 86% VII (AcOH). II (1 g.), 10 cc. morpholine, and 10 cc. H2O was refluxed 1 hr. to give 60% VIII (EtOH). Similarly, the following compds. were obtained [% yield and m.p. (alc.) given]: IX, 47, -; X, 65, .apprx.260°; XI, 82, 215-16° (decomposition). Piperidine (1.5 cc.) was added to a suspension of 0.6 g. II in 10 cc. V in 10 cc. EtOH and the mixture filtered after 20 min. to give 52% XII. Ir spectral data of products were given and discussed; the typical band for the azide group was found in all products with N3. Curves of uv spectra in HCONMe2 were shown; monoazides of purine had maximum absorption about 280 mμ (X 282 and XI 280 mμ), diazides about 305 mμ (VIII 302, IX 305, and IV 302 mμ), and II 325 mμ.
IT 737-63-3, Purine, 2,8-diazido-6-morpholino-
(preparation of)
RN 737-63-3 CAPLUS
CN Purine, 2,8-diazido-6-morpholino- (7CI, 8CI) (CA INDEX NAME)



L3 ANSWER 20 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

L3 ANSWER 21 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1965:51642 CAPLUS
DOCUMENT NUMBER: 62:51642
ORIGINAL REFERENCE NO.: 62:9130d-e
TITLE: Some purine azides
AUTHOR(S): Smirnova, N. B.; Postovskii, I. Ya.
CORPORATE SOURCE: S. M. Kirov Polytech. Inst., Sverdlovsk
SOURCE: Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva im. D. I. Mendeleeva (1964), 9(6), 711-12
CODEN: ZVKOA6; ISSN: 0373-0247
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB 2,6-Dichloropurine and NaN3 refluxed 5 min. in aqueous EtOH gave 75% 2,6-diazidopurine (I), decomposed 190-200°; similarly was prepared 2,6,8-triazidopurine, decomposed 180-90°. I refluxed 1 hr. in aqueous piperidine gave 82% 6-(N-piperidinyl)-2-azidopurine, decomposed 215-16°. Similarly were prepared 6-morpholino-2-azidopurine, decomposed about 260°, 6-(N-piperidinyl)-2,8-diazidopurine, decomposed 190-200°, and 6-morpholino-2,8-diazidopurine, decomposed 190-200°. Uv spectra of the products were reported
IT 737-63-3, Purine, 2,8-diazido-6-morpholino-
(preparation of)
RN 737-63-3 CAPLUS
CN Purine, 2,8-diazido-6-morpholino- (7CI, 8CI) (CA INDEX NAME)



L3 ANSWER 22 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1961:99557 CAPLUS
DOCUMENT NUMBER: 55:99557
ORIGINAL REFERENCE NO.: 55:18782f-i,18783a-i,18784a-d
TITLE: Purines
INVENTOR(S): Roch, Josef
PATENT ASSIGNEE(S): Dr. Karl Thomae G. m. b. H.
DOCUMENT TYPE: Patent
LANGUAGE: Unavailable
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 864145		19610329	GB 1959-18852	19590602
DE 1115260			DE	
US 3016378		19620109	US 1959-824172	19590701

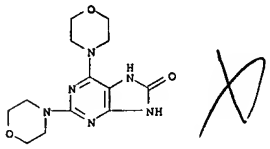
AB New purines were prepared, having 2 or 3 substituted amino groups attached to the nucleus, at least 1 of which was an N-heterocyclic group. The compds. had valuable pharmacol. properties, such as coronary expanding effect, hypotensive action, respiratory control action, and analgesic, sedative, and antipyretic properties. Piperidine (20 cc.) added with stirring to 9.5 g. 2,6,8-trichloro-7-methylpurine in 100 cc. dioxane, the mixture heated to boiling, cooled, and poured into 350 cc. H2O gave 10.2 g. 2-chloro-6,8-dipiperidino-7-methylpurine, m. 140-2° (MeOH). The following purines were prepared (compound, % yield, and m.p. given): 2-chloro-6,8-dimorpholino-7-methylpurine, 75, 284-6°; 2-chloro-6-morpholino-8-benzylamino-7-methylpurine, 86, 211-13° (MeOH) (from 2,6-dichloro-8-benzylamino-7-methylpurine, m. 226-8°); 2-chloro-6-hydrazino8-morpholino-7-methylpurine, decomposed above 250°; 2-chloro-6-hydrazino-8-piperidino-7-methylpurine. 57, decomposed at 250°; 2-chloro-6-(-methoxypropylamino)-8 piperidino-7-methylpurine, 81, 114-16°; 2-chloro-6-guanidino-8-piperidino-7-methylpurine, 89, 130-2°; 2-chloro-6-diethylamino-8-piperidino-7-methylpurine, 98, 108-10° (MeOH); 2-chloro-6-(γ-dimethylaminopropylamino)-8-piperidino-7-methylpurine, 81, 91-3°; 2,6,8-trimorpholinopurine, 48, 247-8° (decomposition) (MeOH); 2-morpholino-6,8-bis(methylamino)-7-methylpurine, 84, 307-9° (decomposition) [from 2-chloro-6,8-bis(methylamino)-7-methylpurine, m. 247-9°]; 2-morpholino-6,8-bis(dimethylamino)-7-methylpurine, 84, 195-7° (H2O); 2,6,8-trimorpholino-7-methylpurine, 81, 238.5-9.5° (H2O); 2-morpholino-6,8-diperidino-7-methylpurine, 95, 189-90°; 2-pyrrolidino-6,8-dimorpholino-7-methylpurine, 89, 197-9°; 2-methylethanolamino-6,8-dimorpholino-7-methylpurine, 64, 148-50° (H2O); 2,8-dimorpholino-6-hydrazino-7-methylpurine, 42, 221-3° (MeOH); 2-(β-hydroxyethylamino)-6,8-dipiperidino-7-methylpurine, 80, 220-2°; 2-morpholino-6-diethylamino-8-piperidino-7-methylpurine, 78, 191-3° (MeOH); 2,6-dimorpholino-8-piperidino-7-methylpurine, 93, 209-11° (EtOH-H2O) (from 2,6-dichloro-8-piperidino-7-methylpurine, m. 143-5°); 2,6-dimorpholino-8-anilino-7-methylpurine, 81, 240-2° (HCONMe2-H2O); 2,6-dimorpholino-8-benzyl-amino-7-methylpurine, 84, 197-9°; 2,6-dimorpholino-7-methylpurine, 84, 215-17°; 2,6-dipiperidino-7-methylpurine, 82, 176-8° (petr. ether-C6H6); 2,6-dimorpholino-8-hydroxypurine, 76, above 350°; 2-ethylthio-6,8-dimorpholino-7-methylpurine, -, 188-90°; 2-(β-ethoxyethoxy)-6,8-dimorpholino-7-methylpurine, 61, 134-6° (petr. ether-C6H6); 2,6,8-trimorpholino-7-methylpurine, 79, 238-40° (H2O) (from 2-chloro-6,8-diiodo-7-methylpurine, m.

L3 ANSWER 22 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
239-41° (MeOH)]; 2,6,8-trimorpholino-9-phenylpurine, 63, 223-4° (MeOH); 2,6-dipiperidino-8-hydroxy-9-phenylpurine, 96, 206° (EtOH-dioxane); 2,6,8-trimorpholino-7-methylpurine, 75, 238-40° (H2O); 2,6,8-tripiperidino-7-methylpurine, 91, 216-18° (MeOH); 2,6-dimorpholino-8-phenylpurine, 55, 244-5° (MeOH); 2,6-dimorpholino-8-benzylpurine, 53, 224° (MeOH-H2O); 2-phenylthio-6,8-dimorpholino-7-methylpurine, 71, 100-2° (MeOH); 2-phenoxy-6,8-dimorpholino-7-methylpurine, 87, 192-4° (MeOH); 2,6,8-trimorpholino-9-benzylpurine, -, 162-3° [from 2,6,8-trichloro-9-benzylpurine, m. 126-8° (MeOH)]; 2,6-dimorpholino-8-hydroxy-9-(p-chlorophenyl)purine, 24, 346-8° (dioxane-EtOH); 2,6-dimorpholino-8-hydroxy-9-(p-methoxyphenyl)-purine, 15, above 350°; 2,6-dipiperidino-8-hydroxy-9-(p-tolyl)purine, 51, 316-18°; 2,8-dimorpholino-6-piperidino-7-methylpurine, 58, 207-9° (MeOH-H2O) (from 2-chloro-8-morpholino-6-piperidino-7-methylpurine, m. 224-6°, obtained from 2,6-dichloro-8-morpholino-7-methylpurine, m. 193-4°); 2-piperidino-6,8-dimorpholino-7-methylpurine, 82, 190-2° (petr. ether-C6H6); 2,6-dipiperidino-8-morpholino-7-methylpurine, 53, 197-9° (MeOH-H2O); 2,6-dipiperidino-9-amino-7-methylpurine, 97, 230-2°; 2,6-dimorpholino-8-(N-phenylpiperazino)-7-methylpurine, 93, 226-8°; 2-[N-(p-chlorophenyl)piperazino]-6,8-dimorpholino-7-methylpurine, 79, 227-30°; 2,6-dimorpholino-8-hexa-methylenimino-7-methylpurine, 75, 159-61°; 2-hexamethylenimino-6,8-dimorpholino-7-methylpurine, 92, 200-2°; 2-chloro-6,8-dimorpholino-9-(p-tolyl)purine, 88, 197-8°; 2,8-dimorpholino-6-thio-7-methylpurine, 42, 255-7°; 2-ethoxy-6,8-dipiperidino-7-methylpurine, 53, 134-5°; 2-dimethylamino-6,8-dimorpholino-7-methylpurine, 94, 167-9°; 2,6-dimorpholino-8-(morpholinomethyl)purine, 46, 235-7°; 2,6-dimorpholino-8-hydroxy-7-methylpurine, 81, 271-3°; 2,6-dipiperidino-8-hydroxy-7-methylpurine, 82, 231-3°; 2-morpholino-6-diethylamino-8-hydroxy-7-methylpurine, 57, 182-4°; 2-morpholino-6-piperidino-8-hydroxy-7-methylpurine, 75, 248-50°; 2,6-dimorpholino-8-chloropurine, 72, 308° (decompn.); 2-chloro-6,8-bis(N-phenylpiperazino)-7-methylpurine, 75, 120°; 2-chloro-6-piperidino-8-morpholino-7-methylpurine, 86,237-9°; 2-chloro-6-morpholino-8-(p-chloroanilino)-7-methylpurine, 90, 147-9°; 2-chloro-6,8-dimorpholino-9-methylpurine, 81, 213-16°; 2-chloro-6,8-dipiperidino-9-methylpurine, 67, 162-3°; 2-methylethanolamino-6,8-dipiperidino-7-methylpurine, 83, 180-2°; 2-morpholino-6,8-bis(N-phenylpiperazino)-7-methylpurine, 53, 156-8°; 2,6,8-trimorpholino-8-methylpurine, 62, 249-50°; 2,6,8-tripiperidino-9-methylpurine, 62, 135-7°; 2-piperidino-6,8-dimorpholino-9-methylpurine, 92, 188-9°; 2,8-dipiperidino-6-morpholino-9-methylpurine, 83, 129-30°; 2-morpholino-6,8-dipiperidino-9-methylpurine, 90, 134-5°; 2,8-dimorpholino-6-piperidino-9-methylpurine, 98, 169-71°; 2,6-dipiperidino-8-(β-hydroxyethylamino)-7-methylpurine, 94, 191-3°; 2,6-dimorpholino-8-benzylmethylamino-7-methylpurine, 95, 163-5°; 2,6-dimorpholino-8-(β-hydroxyethylamino)-7-methylpurine, 81, 223-5°; 2,8-dimorpholino-6-piperidinopurine, 76, 200-2°; 2,6,8-trimorpholino-7-benzylpurine, 92, 224-6°; 2,8-dimorpholino-6-(N-methylpiperazino)purine, 79,257-8°; 2,6,8-trimorpholino-7-(morpholinoethyl)purine, 64, 212-13°; 2,

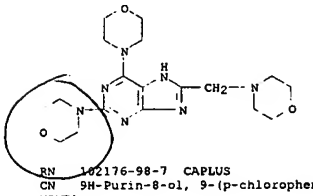
L3 ANSWER 22 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
6-dimorpholino-8-(N-methylpiperazino)purine, 71, 235-6°; 2,6-dipiperidino-8-benzylmethylamino-7-methylpurine, 86, 160-2°; 2-benzylmethylamino-6,8-dipiperidino-7-methylpurine, 81, 153-5°; 2-(N-methylpiperazino)-6,8-dipiperidino-7-methylpurine, 89, 183-5°; 2-(N-methylpiperazino)-6,8-dimorpholino-7-methylpurine, 61, 209-11°; 2-chloro-6,8-di(hexamethylenimino)-7-methylpurine, 68, 170-2°; 2-chloro-6,8-dipyrrolidino-7-methylpurine, 86, 218-20°; 2-diethanolamino-6,8-dipiperidino-7-methylpurine, 52,195-6°; 2-isopentylamino-6,8-dipiperidino-7-methylpurine, 63, 189-90°; 2,6-dipyrrolidino-8-allylamino-7-methylpurine, 93, 213-15°; 2-(β,γ-dihydroxypropylamino)-6,8-dipiperidino-7-methylpurine, 70, 242-4°; 6,8-dimorpholino-7-methylpurine, 41, 251-2°; 2-hydroxy-6-methylamino-8-piperidino-7-methylpurine, 56, 260° (decompn.); 2,6-dimorpholino-8-cyclohexylamino-7-methylpurine, 69, 148-50°; 2,8-dimorpholino-6-anilinopurine, 78, 162-3°; 2,8-dimorpholino-8-aminopurine, 84, 278-9°; 2,8-dimorpholino-6-(diethanolamino)purine, 70, 252-3°; 2,8-dipiperidino-6-(β-hydroxyethylamino)purine, 84, 163-5°; 2-methylcyclohexylamino-6,8-dimorpholino-7-methylpurine, 76, 231-3°; 2-amino-6-morpholino-8-chloropurine, 66, 300° (decompn.); 2,8-dimorpholino-6-benzylaminopurine-HCl, 61, 226-7°; 2,8-dianilino-6-piperidinopurine-HCl, 87, 300° (decompn.); 2,8-dipiperidino-6-(diethanolamino)purine, 72, 88-90°; 2,8-dimorpholino-6-hydroxypurine, 66, 300° (decompn.); 2,8-dimorpholino-6-ethoxypurine, 69, 252-5°; 2-benzoyloxy-6,8-dimorpholino-7-methylpurine, 58, 213-15°; 2,6-bis(3-methoxypropylamino)-8-morpholinopurine, 73, 204-5°; 2-morpholino-6,8-bis(allylamino)-7-methylpurine, 68, 206-7°; 2,6-dimorpholino-8-(β-diethylaminoethylamino)-7-methylpurine, 65, 114-15°;2,6-dimorpholino-8-(3-methoxypropylamino)-7-methylpurine, 59, 104-6°; 2,6,8-tris(3-methylpiperidino)-7-methylpurine, 78, 70-2°; 2-morpholino-6,8-bis(cyclohexylamino)-7-methylpurine, 97, 247-9°; 2,6,8-tris(4-methylpiperidino)-7-methylpurine, 67, 210-11°.

IT **101266-67-5**, Purin-8-ol, 2,6-dimorpholino- **101892-99-3**, Purine, 2,6-dimorpholino-8-morpholinomethyl- **102176-98-7**, 9H-Purin-8-ol, 9-(p-chlorophenyl)-2,6-dimorpholino- **102458-84-4**, Purine, 8-benzyl-2,6-dimorpholino- **860408-93-1**, 9H-Purin-8-ol, 9-(p-methoxyphenyl)-2,6-dimorpholino-
(preparation of)

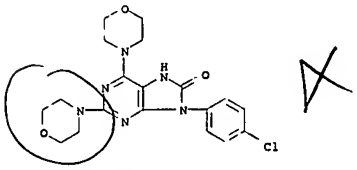
RN 101266-67-5 CAPLUS
CN Purin-8-ol, 2,6-dimorpholino- (6CI) (CA INDEX NAME)



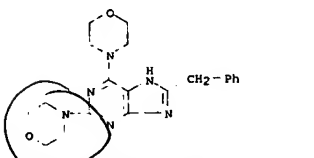
L3 ANSWER 22 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
RN 101892-99-3 CAPLUS
CN Purine, 2,6-dimorpholino-8-morpholinomethyl- (6CI) (CA INDEX NAME)



RN 102176-98-7 CAPLUS
CN 9H-Purin-8-ol, 9-(p-chlorophenyl)-2,6-dimorpholino- (6CI) (CA INDEX NAME)

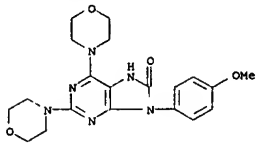


RN 102458-84-4 CAPLUS
CN Purine, 8-benzyl-2,6-dimorpholino- (6CI) (CA INDEX NAME)



RN 860408-93-1 CAPLUS
CN 9H-Purin-8-ol, 9-(p-methoxyphenyl)-2,6-dimorpholino- (6CI) (CA INDEX NAME)

L3 ANSWER 22 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



L3 ANSWER 23 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1960:23152 CAPLUS
DOCUMENT NUMBER: 54:23152
ORIGINAL REFERENCE NO.: 54:4596g-i,4597a-h
TITLE: Purines. VIII. Aminolysis of chlorosubstituted purines
AUTHOR(S): Breshears, S. R.; Wang, S. S.; Bechtolt, S. G.; Christensen, B. E.
CORPORATE SOURCE: Oregon State Coll., Corvallis
SOURCE: Journal of the American Chemical Society (1959), 81, 3789-92
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
OTHER SOURCE(S): CASREACT 54:23152

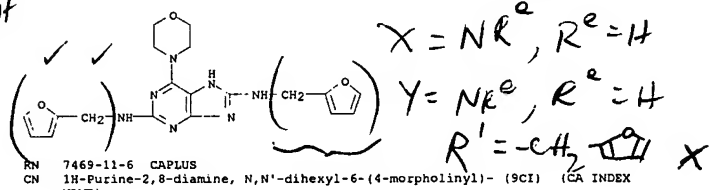
AB cf. C.A. 51, 12936a. -2,6-Dichloropurine (I) and 2,6,8-trichloropurine (II) with amines are aminated stepwise, preferentially at position 6. With strongly active amines, dilution in H2O was required to allow only 6-amination, while less active amines required higher pressures, especially with II. Structures were established through dechlorination of the substituted purines and comparison with known compds. and newly synthesized ones. II was reduced to a tetrahydropurine and I to 2-chloropurine (III). Below are given the substituents on the purine prepared, the halopurine intermediate, the amine reactant, conditions, yield, m.p., and spectra (the values of E reported for λmaximum and λmin. are to be multiplied by 10⁴ and 10³, resp.):
2-chloro-6-furfurylamino (IV), I, 5 ml. furfurylamine (V), 10 ml. H2O, 30 min. reflux, 90%, 263-6°, λmaximum 270, E 1.92, λmin. 236, E 4.44; 2-chloro-6-morpholino (VI), I, 5 ml. morpholine (VII), 10 ml. H2O, 30 min. reflux, 91%, above 260° (decomposition), λmaximum 278, E 2.12, λmin. 238, E 2.64; 2-chloro-6-piperidino (VIII), I, 5 ml. piperidine (IX), 10 ml. H2O, 60 min. reflux, 81%, 282-4°, λmaximum 280, E 2.19, λmin. 238, E 2.52; 2,6-difurfurylamino, I, 10 ml. V, 120 min. reflux, 68%, 162-3°, λmaximum 230 and 287, E 3.50 and 1.18 resp., λmin. 267, E 6.57; 2,6-dimorpholino, I, 10 ml. VII, 120 min. reflux, 93%, 271-3°, λmaximum 244 and 266, E 1.86 and 2.21, resp.; 2,6-dipiperidino, I, 10 ml. IX, 120 min. reflux, 70%, 214-16°, λmaximum 245 and 268, E 1.75 and 2.30, resp.; 2-furfurylamino-6-morpholino, VI, 10 ml. V, 120 min. reflux, 71% 225-6°, λmaximum 287, E 1.73, λmin. 247, E 10.71; 6-furfurylamino-2-morpholino, IV, 10 ml. VII, 120 min. reflux, 93%, 268-70°, λmaximum 240 and 290, E 2.26 and 1.29, resp.; 6-furfurylamino-2-piperidino, IV, 10 ml. IX, 120, 83%, 249-50°, λmaximum 241 and 292, E 2.40 and 1.20 resp.; 2-furfurylamino-6-piperidino, VIII, 10 ml. V, 120, 47%, above 215° (decomposition), λmaximum 288, E 1.94, λmin. 245, E 5.58; 6-furfurylamino-2-hydrazino, IV, 10 ml. NH2NH2.H2O (X), 45, 77%, 212-14°, λmaximum 282, E 1.36, λmin. 255, E 6.83; 2-hydrazino-6-morpholino, VI, 10 ml. X, 45, 83%, 245-7°, λmaximum 231 and 289, E 1.34 and 1.47, resp.; 2-hydrazino-6-piperidino, VIII, 10 ml. X, 45, 83%, 235-8°, λmaximum 231 and 290, E 1.46 and 1.72, resp.; 2-morpholino-6-piperidino, VIII, 10 ml. VII, 120, 93%, 246-7°, λmaximum 245 and 268, E 1.63 and 2.14, resp.; 6-morpholino-2-piperidino, VI, 10 ml. IX, 120, 72%, 228-31°, λmax. 244 and 266, E 1.91 and 2.26, resp.; 6-piperidino, 6-chloropurine, 10 ml. IX, 30, 71%, 274.5°, -. Below are given the substituents on further purines prepd., the halopurine intermediate, the amine reactant, bomb temps. where necessary, reflux time (hrs.), yield, and m.p.:
2,8-dichloro-6-dimethylamino (XI), II, 5 g. Me2NH.HCl, 4 g. NaOAc.3H2O, 20 ml. H2O, 20 ml. EtOH, 2, 67%, 287-8°; 2,8-dichloro-6-furfuryl-amino (XII), II, 10 ml. V, 15 ml. water, 0.75, 71%, 248-9°; 2,8-dichloro-6-morpholino (XIII), II, 10 ml. VII, 20 ml. water, 1, 65%, 280-2°; 2,8-dichloro-6-piperidino (XIV), II, 10 ml. IX, 10 ml. water, 1, 98%, 264-5°; 2,8-difurfurylamino-6-morpholino, XIII, 15 ml. V, 6, 52%, above 137° (decompn.); 2,8-dihexylamino-6-morpholino, XIII, 12 ml. hexylamine (XV), 180°, 12, 69%, above 216° (decompn.); 2,8-dihydrazino-6-morpholino, XIII, 8 ml. X, 2, 88%, above 172° (decompn.); 2,8-dipiperidino-6-morpholino, XIII, 10 ml. IX, 175°, 20, 85%, above 117° (decompn.):
2,6,8-trifurfurylamino, II, 15 ml. V, 4, 77%, 160-1°;
2,6,8-trihydrazino, II, 8 ml. X, 0.75, 95%, 209° (decompn.);
2,6,8-tributylamino, II, 10 ml. BuNH2, 160°, 5, 78%, 206-7°;
2,6,8-trihexylamino, II, 15 ml. XV, 5, 67%, 159-60°;
2,6,8-trimorpholino, II, 10 ml. VII, 175°, 20, 70%, 246-8°;
2,6,8-tripiperidino, II, 10 ml. IX, 175°, 20, 89%, 115-17°.
II (2 g.), 1 g. Pd-C (10%), 75 ml. AcOH, and enough water to wet the catalyst were mixed with H at 42 lb. for 24 hrs. (the H uptake was very small), and the mixt. filtered, evapd. to 3 ml., treated with 50 ml. Et2O, filtered, and dried gave 98% of a tetrahydropurine-2HCl, m. 160° (decompn.). I (1 g.) and 0.72 g. NaOAc in 50 ml. water shaken at room temp. with 0.15 g. Pd-C (10%) under 30 lb./sq. in. H 3 hrs., and the mixt. filtered, concd. to 10 ml. and refiltered gave crude III, which, purified from H2O, yielded 41% III, m. 231-4°. Pulverized substituted mono- and dichloropurines (200 mg.) were added to 2 g. HI (d. 1.96), (the mixt. becoming warm), then pulverized PH4I in excess, the mixt. stirred 2 hrs. at room temp., heated to boiling, evapd., and the 6-substituted purine isolated. Below are given the substituted chloropurine, the substituent on the dehalogenated purine, yield, m.p., λmax. (in μ) and E + 10⁴: XI, 6-dimethylamino, 71%, 251-3° (HCl), 277, 1.56; IV, 6-furfurylamino (XVI), 65%, 269-70°, 274, 1.59; XII, XVI, 13.3%; VI, 6-morpholino (XVII), 81%, 301-3°, 282, 1.89; XIII, XVII, 83%; VIII, 6-piperidino (XVIII), 88%, 274-5°, 281, 1.70; XIV, XVIII, 80%.

IT **7469-10-5**, Purine, 2,8-bis(furfurylamino)-6-morpholino-
7469-11-6, Purine, 2,8-bis(hexylamino)-6-morpholino-
98880-14-9, Purine, 2,8-dihydrazino-6-morpholino-
(preparation of)

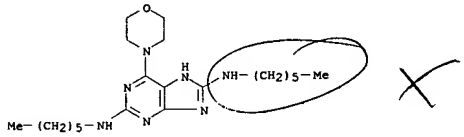
RN 7469-10-5 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-bis(2-furanylmethyl)-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)

L3 ANSWER 23 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

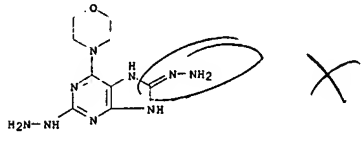
closest art ✓ ✓



RN 7469-11-6 CAPLUS
CN 1H-Purine-2,8-diamine, N,N'-dihexyl-6-(4-morpholinyl)- (9CI) (CA INDEX NAME)



RN 98880-14-9 CAPLUS
CN Purine, 2,8-dihydrazino-6-morpholino- (6CI) (CA INDEX NAME)



L3 ANSWER 24 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1959:62649 CAPLUS
DOCUMENT NUMBER: 53:62649
ORIGINAL REFERENCE NO.: 53:11390b-i,11391a-c
TITLE: Condensation of 4,5-diaminopyrimidines and sugar lactones
AUTHOR(S): Hull, R.
CORPORATE SOURCE: Imp. Chem. Ind., Ltd., Macclesfield, UK
SOURCE: Journal of the Chemical Society (1958) 4069-73
CODEN: JCSOA9; ISSN: 0368-1769
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
GI For diagram(s), see printed CA Issue.

AB Condensation of δ-D-gluconolactone (I) and D-ribonolactone (II) with 2,6-disubstituted 4,5-diaminopyrimidines, N:CR.N:C(NH2).C(NH2):CR1 (III), gave derivs. of δ-substituted purines, N:CR2.NH.C:C.CR1:N.CR:N (IV). HNEt2 (12.5 ml.) added dropwise with stirring at 0° to 7.56 g. N:CMe.N:C(NH2).C(NO2):CCl (V) in 280 ml. EtOAc, the solution kept 2 days at room temperature, evaporated in vacuo, and the water-washed residue (9.0 g.) recrystd. (dilute alc.) gave 4-amino-6-diethylamino-2-methyl-5-nitropyrimidine (VI), m. 109.5-10.5°. VI (8.7 g.) reduced in alc. with Raney Ni at 20°/1 atmospheric, the filtered solution evaporated, and the residue recrystd. (ligroine, b. 60-80°) yielded 7.6 g. III (R = Me, R1 = NEt2) (VII), m. 117-18°. VII (1.95 g.) and 1.96 g. I heated 10 min. at 140-50° (oil bath), the cooled melt extracted with water, and decolorized (C) gave 1.2 g. IV [R = Me, R1 = NEt2, R2 = (CHOH)4CH2OH] (VIII), m. 229° (H2O), [α]21D 41° (c 3.33, 0.1N HCl). V (7.6 g.) in 280 ml. EtOAc stirred with dropwise addition of 7.6 g. morpholine, the solution kept 2 days, filtered, the precipitate washed with EtOAc, the combined filtrate and washings evaporated, the residues combined, and recrystd. (dilute alc.) gave 9.0 g. 4-amino-2-methyl-6-morpholino-5-nitropyrimidine, m. 193.5-95°, hydrogenated (2.25 g.) in 50 ml. MeOH with Raney Ni and the product recrystd. (EtOAc) to give 2.0 g. III (R = Me, R1 = morpholino) (IX), m. 191°. Finely ground IX (1.05 g.) and 0.98 g. I heated at 140° to a melt and 10 min. afterwards, the solidified melt extracted with boiling water, and the solution decolorized (C) gave IV [R = Me, R1 = morpholino, R2 = (CHOH)4CH2OH] (X), m. 260°, [α]21D 39° (c 3.093, 0.1N HCl). IV (0.4 millimole) in hot water cooled quickly, treated with 10 ml. 0.2039M NaIO4, kept 24 hrs., diluted to a known volume, an aliquot treated with 0.1N NaAsO2 according to Barnebey (C.A. 10, 730) to determine the unchanged NaIO4, and another aliquot titrated with 0.1N NaOH gave the amount of HCO2H liberated. Liberation of 2.93 moles HCO2H from VIII was consistent with the proposed formulation. Neutralization of the acid reaction mixture of VIII and NaIO4 and recrystn. of the water-washed precipitate gave IV (R = Me, R1 = NEt2, R2 = CHO) (XI), m. 210.5-11° (dilute alc.). Similarly, neutralization of the mixture from X and NaIO4 and subsequent treatment with NaHCO3 gave the corresponding aldehyde, C11H13N5O2, m. 285° (decomposition) (BuOH). XI did not reduce Fehling solution, resisted oxidation with alkaline peroxide, Ag2O, N2O4,

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HNO3, and did not give a Cannizzaro reaction with alkali, but gave the expected condensation products: 2,4 - dinitrophenylhydrazone - HCl m. 294° (decompn.) (BuOH); (methylthio)thiocarbonylhydrazone m. 234° (decompn.) (BuOH); oxime m. 238° (decompn.) (alc.), converted through the oxime Ac deriv., m. 189/299°, by heating at 190°, adding aq. NaHCO3 to the cooled residue, and recrystg. (EtOCH2CH2OH) the water-washed ppt. to give IV (R = Me, R1 = NEt, R2 = CN), m. 302°. VII (1.0 g.) and 2.15 g. HOCH2CO2Et heated 2 hrs. at 140°, the cooled mixt. dild. with Et2O, the Et2O-washed solid twice recrystd. (PhMe), and decolorized (C) gave IV (R = Me, R1 = NEt2, R2 = HOCH2) (XII), m. 210°. VII (0.72 g.) and 0.38 g. MeC(:NH)NH2.HCl heated 20 min. at 160°, the cooled melt treated with a slight excess of aq. NaHCO3 and the product recrystd. (ligroine, b. 100-20°) gave IV (R = R2 = Me, R1 = NEt2) (XIII), m. 166°. Finely powd. K2Cr2O7 (0.25 g.) added slowly with stirring to 0.5 g. XII in 10 ml. AcOH at 80°, the mixt. stirred 1 hr., and the cooled mixt. neutralized with NaHCO3, filtered, and the water-washed product (0.3 g.) recrystd. (dil. alc.) gave XI, ν 1700 cm.-1 (Nujol). XII (0.25 g.) in 4.5 ml. HI (d. 1.7) and 0.05 g. red P refluxed 3 hrs., the cooled mixt. filtered, the filtrate neutralized with aq. NaHCO3, filtered, and the ppt. washed with water gave 0.14 g. solid, m. 161°, recrystd. (ligroine, b. 100-20°) to give XIII. III (R = H, R1 = NEt2) (1.0 g.) and 0.99 g. I heated 2.5 hrs. at 120° and the product twice recrystd. (H2O) gave IV (R = H, R1 = NEt2, R2 = (CHOH)4CH2OH), m. 188-9.5°. VII (1.95 g.) and 1.62 g. II heated 10 min. at 140 ± 5°, the cooled mixt. extd. with a small amt. of hot H2O, and the residue crystd. (BuOH) gave IV (R = Me, R1 = NEt2, R2 = (CHOH)3-CH2OH), m. 228-9° (sintering at 220°), [α]24D -20° (c 3.098, C5H5N).
I (1.04 g.) and 1.0 g. III (R = MeS, R1 = NH2) (XIV) heated 30 min. at 140°, the cooled melt extd. with boiling water, and the decolorized (C) soln. cooled gave 0.97 g. 4,6-diamino-5-(D-gluconamido)-2-(methylthio) pyrimidine, m. 184-5°, [α]22D 58° (c 2.991, 5% citric acid). XIV (1.71 g.) and 1.56 g. II heated 15 min. at 140° and the cooled product repeatedly crystd. (H2O) gave 4,6-diamino-2-methylthio-5-(D-ribonamido) pyrimidine-H2O, m. 224-5°, [α]21D 28° (c 4.029, 5% citric acid).

IT **100128-68-5**, Purine-8-carboxaldehyde, 2-methyl-6-morpholino- **884594-66-5**, 1,2,3,4,5-Pentanepentol, 1-(2-methyl-6-morpholinopurin-8-yl)-, D-gluco- (preparation of)

RN 100128-68-5 CAPLUS

CN Purine-8-carboxaldehyde, 2-methyl-6-morpholino- (6CI) (CA INDEX NAME)

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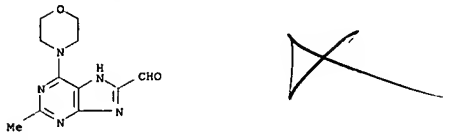
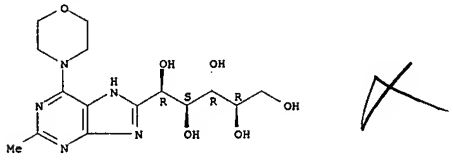


RN 884594-66-5 CAPLUS

CN 1,2,3,4,5-Pentanepentol, 1-(2-methyl-6-morpholinopurin-8-yl)-, D-gluco- (6CI) (CA INDEX NAME)

Absolute stereochemistry.



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ACCESSION NUMBER: 1959:62647 CAPLUS
DOCUMENT NUMBER: 53:62647
ORIGINAL REFERENCE NO.: 53:11389a-i,11390a-b
TITLE: Synthesis of potential anticancer agents. XVI. S-Substituted derivatives of 6-mercaptopurine
AUTHOR(S): Johnston, Thomas P.; Holum, Lee B.; Montgomery, John A.
CORPORATE SOURCE: Southern Research Inst., Birmingham, AL
SOURCE: Journal of the American Chemical Society (1958), 80, 6265-71
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
OTHER SOURCE(S): CASREACT 53:62647

AB cf. C.A. 53, 7183h. EtI (0.6-0.7 cc.) added with stirring to 1.12 g. 6-mercaptopurine-H2O (I.H2O), 0.911 g. K2CO3, and 4.8 cc. HCONMe2 at 30°, the mixture stirred 10 min., heated 0.5 hr. at 40-50°, cooled a little, poured into 40 cc. H2O, adjusted with 6N HCl to pH 5, refrigerated overnight, and filtered, and the residue dried in vacuo at room temperature over P2O5 gave 0.965 g. 6-ethylthiopurine (II), m. 196°; the filtrate adjusted to pH 6-7 with dilute aqueous NaOH and evaporated to dryness in vacuo at 60°, the residue triturated with 15 cc. H2O, the pH adjusted with 6N HCl to 5, and the mixture refrigerated gave an addnl. 0.135 g. II. I.H2O (3.00 g.), 2.73 g. K2CO3, and 15 cc. HCONMe2 stirred 15 min. at 25°, treated with stirring with 3.01 g. ClCH2CH:CHPh in 5 cc. HCONMe2, heated 40 min. at 45-56°, cooled, poured into 150 cc. H2O, adjusted to pH 5-6 with AcOH, and refrigerated gave 3.31 g. 6-cinnamylthiopurine, m. 210° (EtAc), 0.20 g. 2nd crop, and 0.41 g. 3rd crop. I.H2O (4.00 g.), 3.25 g. K2CO3, and 20 cc. HCONMe2 stirred 15 min. at 29°, treated with stirring with 2.7-2.8 cc. BrCH2CH2OEt, stirred 33 min., heated 45 min. at 47-53°, poured into 120 cc. H2O, acidified to pH 5, evaporated below 60° in vacuo, and then repeatedly evaporated with MeOH and Me2CO, the tan residue extracted with boiling C6H6, the extract concentrated to 75 cc., cooled, and filtered, and the residue dried yielded 3.31 g. (crude) 6-(2-ethoxyethylthio)purine, m. 143°, and 0.32 g. 2nd crop. The C6H6-extracted residue treated with 20 cc. H2O gave 0.21 g. unchanged I (method A-1). Bromocyclopentane (3.4 cc.) added with stirring to 4.00 g. I.H2O, 3.64 g. K2CO3, and 25 cc. HCONMe2, kept 15 min. at room temperature, heated gradually to 74°, stirred 3 hrs. at 74-80° (other compds. 1 hr. or less), cooled a little, diluted with 200 cc. H2O, acidified with 2.5 cc. AcOH, cooled, and filtered, and the residue washed with H2O and dried gave 4.96 g. 6-cyclopentylthiopurine, m. 228° (EtOAc) (method A-2). I.H2O in aqueous medium treated with the appropriate alkyl halide and NaOH gave the corresponding 6-alkylthiopurine (method B). 6-Chloropurine (2.50 g.), 0.88 g. NaOMe, and 2.00 g. o-MeC6H4SH in 50 cc. PrOH refluxed 1.5 hrs. and filtered gave 3.34 g. 6-(m-tolylthio)purine, m. 220° (EtOH), and 0.50 g. 2nd crop (method C). o-HSC6H4CO2H (3.30 g.) and 5.35 g. K2CO3 in 20 cc. HCONMe2 stirred 5 min., the mixture treated with 3.00 g. 6-chloropurine, stirred 15

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min., heated 1 hr. at 40-50°, poured into 120 cc. H2O, partially neutralized with 5 cc. concd. HCl, adjusted with N HCl to pH 3, and filtered, and the tan residue washed with H2O and dried gave 5.15 g. 6-(o-carboxyphenylthio)purine, m. 238-9° (repptd. from N NaOH with N HCl) (method D), also prepd. by method C in 59% yield, m. 242-3° (EtOAc). Similarly were prepd. the following 6-[alkyl(aryl)thio] purines (alkyl or aryl group, method of prepn., % crude yield, and m.p. given): CH.tplbond.CCH2, A-1, 95, 238° (decompn.) (MeOH); NCCH2, A-1, 95, 258° (decompn.) (H2O); CH2:CHCH2, A-1, 84, 176° (H2O); Pr, A-1, 93, 179° (H2O); iso-Pr, A-1, 88, 239.5° (H2O); HOCH2CH2, A-2, 75, about 200° (decompn.) (crystd. from H2O as hydrated plates and needles; H2O of crystn. was removed by evapg. a soln. in MeOH to dryness in vacuo over P2O5 at 80°); AcCH2, A-1, 88, 184.5° (H2O); Bu, A-1, 93.5, 152° (aq. MeOH or PhCl); H2NOCCH2, A-1, 87, 264° (decompn.) (H2O); HO2CCH2, A-2, 96, chars above 260° (H2O); ClCH2CH2, A-1, 48, 277-9° (decompn.); Am, A-1, 93, 115.5° (CCl4); MeOCOCH2, A-1, 80, 169° (decompn.) (EtOAc); HO2CCH2CH2, A-2, 73, 227° (decompn.) (H2O); CH2:CClCH2, A-1, 90, 173° (H2O); PhCH2, B, 86, 193° (PhMe); 2-thenyl, A-1, 99, 186° (EtAc); PhCH2CH2, A-1, 99, 166.5° (C6H6); o-FC6H4, B, 70, 161°; m-FC6H4, B, 84, 159°; p-FC6H4, B, 86, 229°; C8H17, A-1, 97, 87° (amorphous form) (resolidified and remelted at 100°) (Skellysolve C); BzCH2, A-1, 102, 170° (EtOAc); PhOCH2CH2, A-1, 103, 154° (C6H6); o-ClC6H4, B, 78, 202°; o-ClC6H4, A-1, 100, 203° (CHCl3); p-ClC6H4, B, 60, 201.5° (aq. MeOH); p-ClC6H4, A-1, 94, 201° (MeOH); p-O2NC6H4, B, 76, 262°; C10H21, A-1, 98, 95° (amorphous form) (resolidified and remelted at 101°) (Skellysolve C); 3,4-Cl2C6H3, A-1, 104, 222° (aq. MeOH); C12H25, A-1, 99, 98° (Skellysolve C); Ph, C, 82, 256-7°; o-MeC6H4, C, 88.5, 174° (MeCN); p-MeC6H4, C, 78, 254°; p-ClC6H4, C, 95, 271.5-72° (EtOH); p-O2NC6H4, C, 71, 259-60° (Methyl Cellosolve); 2-C10H7, C, 84, 287-9° (Methyl Cellosolve). PhCH2Cl (0.12 cc.) added with stirring to 250 mg. 9-benzyl-6-mercaptopurine, 137 mg. K2CO3, and 3 cc. HCONMe2, stirred 15 min. at 23-5°, heated about 0.5 hr. at 40-53°, cooled, poured into 25 cc. H2O, cooled, and filtered gave 308 mg. crude product; a 295-mg. portion recrystd. from about 20 cc. cyclohexane yielded 240 mg. 9-benzyl-6-benzylthiopurine, needles which fused at 100° to a solid, m. 108°. 7-Benzyl-6-mercaptopurine-0.25H2O (74 mg.) gave similarly during 1 hr. at 50° mg. product, which recrystd. from about 20 cc. cyclohexane yielded 51 mg. 7-benzyl-6-benzylthiopurine, m. 120°. The ultraviolet absorption max. of the thiopurine derivs. are tabulated.

IT **884594-66-5**, 1,2,3,4,5-Pentanepentol, 1-(2-methyl-6-morpholinopurin-8-yl)-, D-gluco- (preparation of)

RN 884594-66-5 CAPLUS

CN 1,2,3,4,5-Pentanepentol, 1-(2-methyl-6-morpholinopurin-8-yl)-, D-gluco- (6CI) (CA INDEX NAME)

Absolute stereochemistry.

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